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DIRECTORY of CLIENT OUTCOME MEASURES for ADDICTIONS TREATMENT PROGRAMS

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Addiction Research Foundation
Fondation de la recherche sur la toxicomanie

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PREFACE

PREFACE

The following summarizes the background and major features of the directory of outcome measures for evaluating outcomes of clients of addictions treatment.

What is the directory of client outcome measures?

- the directory is a resource book (like a dictionary) containing information on a number of standardized measures for assessing particular life areas of client functioning following treatment (for example, alcohol consumption, self-esteem, depression)
- the directory has been developed by a working group of Ontario service providers and researchers in order to assist programs who are seeking standardized outcome measures for use as part of program evaluation and other purposes.

The task of the working group included:

- reviewing *existing* measures to identify those suitable for evaluating outcomes of clients of addictions treatment programs
- ensuring that Ontario addictions programs have *access* to existing measures.

PRÉFACE

Voici les principales caractéristiques du répertoire d'évaluation de la situation des clients après un traitement pour toxicomanie.

Qu'est-ce que le répertoire d'évaluation de la situation des clients en phase de suivi?

- le répertoire est un document de référence (tel qu'un dictionnaire) qui contient des renseignements sur un certain nombre de critères normalisés permettant d'évaluer certains aspects de la vie du client après son traitement (p. ex., consommation d'alcool, estime de soi, dépression)
- ce répertoire a été élaboré par un groupe de travail composé de fournisseurs de services et de chercheurs de l'Ontario à l'intention des responsables de programmes qui ont besoin de critères normalisés pour l'évaluation de la réussite des traitements, qu'ils utiliseront dans le cadre de l'évaluation des programmes et à d'autres fins.

Le groupe de travail avait notamment pour tâche:

- d'examiner les critères *actuels* afin de déterminer ceux qui peuvent servir à évaluer la situation des clients après un traitement pour toxicomanie
- de s'assurer que les programmes de traitement de la toxicomanie de l'Ontario *ont accès* aux critères actuels.

A measure was included in the directory if:

- it met standard criteria for reliability and validity
- it appeared to be valid and meaningful as an outcome measure of addictions treatment
- it was judged by the working group to be relevant and useful for addictions treatment programs.

The selection process:

- an extensive search of the literature was done and hundreds of measures were evaluated
- all measures identified as meeting the criteria were included - the coverage (in terms of life areas and target populations) reflects the availability of *existing* measures not our assessment of the importance of particular life areas or target populations
- the lack of suitable measures for certain target groups (e.g., elderly) or for certain life areas (e.g., assertiveness) reflects the lack of measures in these areas that have been validated for use with clients of addictions treatment programs.

Les critères figurant dans le répertoire:

- sont conformes à des normes de fiabilité et de validité
- sont considérés comme valables et utiles pour évaluer la situation des clients après un traitement pour toxicomanie
- sont, de l'avis du groupe de travail, pertinents et utiles pour les programmes de traitement de la toxicomanie.

Le processus de sélection

- une étude documentaire exhaustive a été effectuée et des centaines de critères ont été évalués
- tous les critères qui se conformaient à nos normes ont été inclus dans le répertoire. Les aspects de la vie des clients et les populations visés par ces critères reflètent la disponibilité des critères *existants* et non l'importance de ces aspects ou populations cibles
- le manque de critères adéquats pour certains groupes cibles (p. ex., les personnes âgées) ou certains aspects de la vie des clients (p. ex., l'assurance) témoigne du faible nombre de critères dont l'utilisation a été jugée efficace pour évaluer les résultats des programmes de traitement de la toxicomanie.

Limitations of the directory:

- the directory is not a manual on how to conduct program evaluation. It is limited to outcome assessment and does not address other issues of program evaluation
- the directory is a collection of instruments to select from, *not* an assessment package to be used in its entirety
- the measures selected for the directory will not meet *all* the outcome measurement needs for *all* programs.

Uses of the directory:

- the measures included in the directory provide standardized ways to assess specific areas of life functioning
- a program can make the best use of standardized outcome information when:
  1) the program has a clear rationale (a clear understanding of what is done in the program and the changes expected for clients as a result of the program)
  2) the program has specific goals for the clients (e.g., abstinence, higher self-esteem, stable employment)
  3) the program has (or can get) the resources and expertise to use the information once it has been collected.

Limites du répertoire:

- le répertoire ne donne pas de marche à suivre pour l'évaluation des programmes. Il ne traite que de l'évaluation des résultats en ce qui concerne la situation des clients et ne porte sur aucun autre aspect de l'évaluation des programmes
- le répertoire constitue un ensemble d'instruments parmi lesquels on peut choisir, et non une trousse d'évaluation à utiliser intégralement
- les critères figurant dans le répertoire ne permettront pas de répondre à *tous* les besoins d'évaluation de *tous* les programmes.

Utilisation du répertoire:

- Les critères figurant dans le répertoire constituent des moyens normalisés d'évaluer des aspects précis de la vie des clients
- Pour utiliser le plus efficacement possible ces critères normalisés, le programme doit :

  1) avoir une raison d'être précise (bonne compréhension de la nature du programme et des changements attendus chez les clients)
  2) comprendre des objectifs précis pour les clients (p. ex., abstinence, meilleure estime de soi, emploi stable)
  3) avoir ou obtenir les ressources et l'expertise nécessaires pour utiliser les renseignements recueillis.

How to use the directory:

- the directory is divided into five sections:
  - I. Introduction
  - II. Discussion of technical issues related to measurement (e.g. reliability and validity)
  - III. Measures related to substance use
  - IV. Measures related to life areas other than substance use
  - V. Measures related to treatment response

- for background on the directory and suggestions for using it, see Section I
- section II provides information on technical aspects of validating scales and on using scales in ways that are most likely to produce valid results
- the scales are described (and in many cases the scale is reproduced) in Sections III, IV and V. Programs should select measures from these sections that are appropriate for clients of the program and the program's information needs.

French and English language versions of the directory:

- A French language version of the directory is currently being prepared by Health and Welfare Canada.

Utilisation du répertoire

- le répertoire est divisé en cinq parties :
  - I. Introduction
  - II. Discussion des questions techniques relatives à l'évaluation (p. ex., fiabilité et validité)
  - III. Critères reliés à la consommation d'alcool et d'autres drogues
  - IV. Critères reliés à d'autres aspects de la vie
  - V. Critères reliés à la réaction au traitement

- pour des renseignements de base sur le répertoire et des conseils d'utilisation, voir la partie I
- la partie II contient des renseignements sur les aspects techniques des échelles de validation et sur la façon d'utiliser ces échelles afin d'obtenir des résultats valables
- les échelles sont décrites (et, souvent, reproduites) aux parties III, IV et V. Les responsables des programmes devraient choisir dans ces parties les mesures qui conviennent à leurs clients et à leurs besoins d'information.

Versions française et anglaise du répertoire:

- Une version française du répertoire est actuellement préparée par Santé et Bien-être social Canada.

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PART I. INTRODUCTION TO THE DIRECTORY OF OUTCOME MEASURES

During the past decade, addictions treatment programs[1] have become increasingly concerned with evaluating their services in order to document their accomplishments and to help refine treatment. To date, substantial attention has been paid to tools or methods for initial assessment, process evaluation (measuring the types of services delivered and to whom) and quality assurance (comparing program functioning to a set of standards). More recently, attention is being focused on measuring outcomes. With common use of personal computers and increasing emphasis on aftercare and relapse prevention, program staff are becoming more willing and able to monitor client outcomes in a variety of life areas following treatment. As monitoring client outcomes becomes a priority for individual programs, these programs need access to satisfactory outcome measurement tools. To address this need, a working group was established consisting of members of the various addictions treatment program associations, representatives of different departments within the Addiction Research Foundation, and a representative from Health and Welfare Canada.

The working group decided to develop a *directory* of *existing* outcome measurement instruments that addressed specific areas of life functioning. This would ensure use of a standard set of the best available measures, while still allowing the maximum flexibility for programs to construct their own outcome assessment packages. The directory is intended to be a resource for program managers who wish to include standardized outcome measures as part of a clinical follow-up or program evaluation.

A directory of outcome measures is a resource book (like a dictionary) containing information on a number of standardized measures for assessing particular life areas of client functioning following treatment. Some examples of life areas that might be relevant to treatment outcome include: alcohol consumption, drug use, self-esteem and depression. The directory allows programs to select outcome measures that are suitable for their clients and relate to specific treatment goals.

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[1] *Throughout this document, the term "addictions treatment programs" is used to refer to all programs directed towards reducing substance abuse among persons who are experiencing problems with alcohol or drugs.*

Why a *Directory* of Outcome Measures?

It was recognized early in the project that addictions treatment programs vary widely:

- in their objectives
- in the characteristics of their clients
- in their program content and methods
- in their interest, ability and resources for evaluation
- and in many other factors.

Consequently, no single outcome measurement instrument would be suitable for all programs. Instead, programs need to have access to a range of measurement tools from which measures that are appropriate to the particular characteristics of each program can be selected.

The directory includes instruments that are stand-alone measures of specific outcomes (e.g., alcohol consumption, depression) and that have been demonstrated valid for measuring outcomes of addictions treatment. By providing measures that assess each life area specifically and independently, the directory can provide maximum flexibility for each program to select an appropriate combination of outcome measures.

The directory includes measures of specific life areas that are valid for use in outcome evaluation of addictions treatment.

However, the directory is not:

- **an assessment battery**
- **a manual on how to do program evaluation**
- **a source of information on measures that have not been validated for use with addictions treatment programs.**

For readers who need any of the above types of information, please see the Annotated Bibliography in Appendix A at the end of the directory.

The Organization of the Directory

The directory is organized into five parts. The first part (this part) consists of a general description of the rationale and functions of the directory. The second part describes some technical information regarding general measurement issues such as reliability and validity. The subsequent three parts contain specific measures related to: substance use and problems, life areas other than substance use (e.g., depression), and measures related to treatment response (e.g., client satisfaction).

There are several reasons for including measures of life areas other than substance abuse in follow-up assessment. First, many programs see quitting substance abuse as the *means* by which the person can improve his or her life, but the overall objective of treatment is that things will become generally better overall for the person. Therefore, these other areas are relevant to treatment objectives for some programs. Second, substance abuse is at least partly a lifestyle problem. Therefore, in collecting information regarding both positive and negative outcomes following treatment, it is useful to look at other life areas that may be implicated in the person's success or failure in stopping substance abuse. Such information can provide useful clues for improving the treatment process. Finally, evidence from a number of areas that a client has improved provides a more convincing case for treatment success than a single estimate of the client's current substance abuse problem.

The directory is divided into five major sections:

I. Introduction

II. Discussion of technical issues related to measurement (e.g., reliability and validity)

III. Measures related to substance use

IV. Measures related to life areas other than substance use

V. Measures related to treatment response.

How Measures Were Selected for the Directory

The directory focuses on outcome measurement tools and how to use them. The following criteria were employed in the selection of measures for the directory:

(a) the measure provides a valid assessment of what it purports to measure;

(b) the measure is as brief and easy to administer as possible while still meeting the validity criterion;

(c) the measure is acceptable to and respectful of clients (i.e., does not involve deception or manipulation);

(d) the measure provides useful clinical information when administered during clinical follow-up with individual clients;

(e) the measure can provide an overall score (or possibly several scores) that is a meaningful measure of status in that life area;

(f) the measure is sufficiently sensitive to detect clinically significant changes made by the client in that life area;

(g) the measure is valid and meaningful for evaluating outcomes with substance abuse populations; and,

(h) the measure is generally available for use by programs at no cost or at minimal cost.

A measure was included in the directory if:

- **it met standard criteria for reliability and validity**
- **it appeared to be valid and meaningful as an outcome measure of addictions treatment**
- **it was judged by the working group to be relevant and useful for addictions treatment programs.**

Life Areas Covered by the Directory

The extent of standardization and instrument development varies for different life areas. For example, a number of standardized measures of alcohol dependence exist, but there has been no standardization of measurement of other types of adverse consequences of alcohol use. The following chart shows life areas identified as potentially relevant to the directory and the measures within that life area that met the criteria for inclusion in the directory.

Substance-Related Life Areas for Which Measures Were Reviewed

Substance-Related

A. Alcohol Consumption	Lifetime Drinking History (LDH) Quantity/Frequency (QF) Timeline Followback Method (TLFB)
B. Drug Consumption	No standardized measure identified, but examples are provided of measures currently in use
C. Adverse Consequences of Alcohol Use	Examples of some non-standardized approaches to measuring consequences other than dependence. Short Alcohol Dependence Data (SADD) Alcohol Dependence Scale (ADS)
D. Adverse Consequences of Drug Use	Drug Abuse Screening Test (DAST)
E. Drinking/Drug Use Situations	Inventory of Drinking Situations (IDS) Inventory of Drug Use Situations (IDTS)
F. Self-Efficacy and Coping	Situational Confidence Questionnaire (SCQ) Drug Avoidance Self-Efficacy Scale (DASES) Coping Behaviours Inventory (CBI)

Other Life Areas for Which Measures Were Reviewed

Other Life Areas

A. Psychological Well-Being

Life satisfaction/general enjoyment of life	*
Purpose in life	Purpose in Life Test (PIL)
General mental/emotional health	Symptom Checklist 90 (SCL 90) Profile of Mood States (POMS)
Depression	Beck Depression Inventory (BDI) Centre for Epidemiological Studies Depression Scale (CES-D)
Anxiety	State-Trait Anxiety Inventory (STAI)
Self-esteem/self-confidence	Rosenberg Self Esteem Scale (SES)
Assertiveness	*
Aggression	*
Spiritual well-being	*
Stress	*

B. Social/Leisure

Social/interpersonal relationships	*
Communication skills	*
Social support	*
Family relationships/functioning	Family Environment Scale (FES)
Marital relationships/functioning	Dyadic Adjustment Scale (DAS)
Leisure time use and satisfaction	*

C. Other

Cognitive functioning	Digit Symbol Trail Making Test-B
Physical health	Health Questionnaire (HQ)
Activities of daily living	*
Degree of empowerment	*

D. Life Stability Measures

Legal status	Examples of typical measures
Employment status	Examples of typical measures
Financial status	Examples of typical measures
Accommodation	Examples of typical measures
Use of other services	Examples of typical measures

Treatment Response Measures

A. Client Satisfaction/Feedback	Client Satisfaction Questionnaire (CSQ-8) Examples of client feedback forms used by addictions treatment programs

**Indicates that no standardized measures were identified that met the criteria for inclusion*

Choosing Measures Suitable for Specific Client Populations

Every measure in the directory is not necessarily suitable for all client populations. For example, a scale that has been shown to be valid using a sample of young male substance abusers will not *necessarily* be valid for use with elderly female substance abusers. Thus, although a measure has met the criteria for inclusion in the directory, *each program manager must assess whether the particular measure is appropriate for the program's clients and goals.* To aid in this decision, the summary for each measure contains a description of those client populations for which the scale has been validated.

Most of the standardized measures have been validated for use with English-speaking adult men and women. In some life areas such as employment, however, available examples of measures appear to be more applicable to males than females. Measures currently available are less likely to be generalizable to other populations such as youth, the elderly, or particular language or cultural groups. Since the mandate of the directory was to review *existing* measures, the lack of suitability of measures for particular groups reflects what *is* available, not what *should* be available. The working group recommends that measures be developed and validated in all life areas to meet the criteria. Similarly, measures should be developed and validated to meet the needs of the diversity of client populations who receive addictions treatment. In some instances potentially suitable measures are available but they have yet to be validated for addictions context or with specific client populations.

The directory includes existing measures that met the criteria for use as outcome measures of addictions treatment. The measures that met these criteria do not address all relevant life areas and all relevant populations. There is need for the development and validation of measures for life areas and populations not addressed by existing measures.

Program managers should select measures that have been validated for use with the types of clients who attend their program. For some program populations (e.g., youth, elderly), only a few suitable measures are available.

Uses of Data from Outcome Measures

The measures included in the directory provide standardized ways to assess specific areas of life functioning. Many of the measures are best used to compare the client's functioning before and after treatment. For example, does the client drink less following treatment than prior to treatment? Does the client commit fewer legal offenses in the 12 months following treatment than in the 12 months prior to treatment? Some outcome measures relate only to post-treatment functioning. For example, outcome measures can include client satisfaction and attendance at aftercare. In sum, measuring outcomes involves finding out what happens to clients following treatment. Are they abstinent? Did their self-esteem improve compared to their self-esteem before treatment?

Outcome information is important. It is necessary information for a program to evaluate its effectiveness. However, outcome information, by itself, is not enough to evaluate a program's effectiveness. Positive or negative changes in clients may be due to a variety of causes other than receiving treatment. Measuring outcomes can be used for evaluating a program, but measuring outcomes is not the same thing as program evaluation. Program evaluation uses designs and several types of information (including outcomes) to assess not only whether clients changed but also the extent to which clients changed as a result of the treatment that they received.

Although positive client outcomes are important, these results do not necessarily measure the success of the program. For example, it may be that outcome data show that clients who completed treatment at Program X are doing much better than they were before they went for treatment. It may also be the case, however, that outcome data from those who were referred for treatment but chose not to go also show these persons to be doing much better - even though *they received no treatment.* In this case, although it can be shown that clients improved after treatment, there is no evidence that this improvement was necessarily due to the effectiveness of treatment. It could be that at the time of referral most clients were functioning worse than usual and at follow-up they had returned to their usual functioning, thus appearing to have improved.

A second example illustrates the problems with using outcome data to compare the effectiveness of different programs. The clients who attend Program X are socially stable, employed alcohol abusers, and data collected at Program X show that most clients are doing very well after treatment. At Program Y, on the other hand, the clients are chronic alcoholics with few social or economic supports. Outcome data show that some clients do improve after Program Y, but many do not. Can it be concluded that Program X is more effective than Program Y? Not necessarily. Clearly, the clients who attend the two programs are very different. Therefore, it does not make sense to compare the two programs on the basis of outcome measures alone.

Because of the ambiguity of the results in terms of judging program effectiveness, outcome evaluation has been thought to be beyond the resources of most programs. Outcome evaluation is expensive, difficult to do well, and requires careful methodology to interpret. In particular, clear interpretation regarding *overall effectiveness* of a program requires aggressive follow-up (to ensure that outcome information is available on at least 80% of clients) as well as random assignment to a suitable comparison group.

On the other hand, although the experimental paradigm has been the gold standard for program evaluation, these days it is recognized that many important outcome evaluation questions can and should be addressed without using experimental methods. While recognizing that data on client outcomes will not provide conclusive evidence of program effectiveness, *there are a variety of worthwhile reasons for monitoring client outcomes*. In particular, from the perspective of clinical accountability, it is important for program staff to find out what happens to their clients once they leave treatment. Many programs already include clinical follow-up in the aftercare/case management component of their programs. The use of standardized measures provides a means for the collection of follow-up information to be more systematic and potentially more valid.

The directory is not a manual on how to evaluate program effectiveness, since the directory is limited to outcome assessment and does not address other issues of program evaluation. Experience in evaluation over the last 20 years, however, has determined that there are many other important questions to ask besides the overall effectiveness of programs - and many of these questions can be addressed by monitoring client outcomes.

Some of the questions that can be addressed using outcome data include: determining the types of clients who appear to improve after treatment and the types who do not; monitoring the length of time that clients are able to maintain improvements following treatment; assessing the effects on client outcomes of particular program changes; identifying subsets of clients who may need additional services or referrals; and measuring the relationships between changes in substance use following treatment and changes in other life areas.

When to Use Outcome Measures

It is generally useful for programs to monitor client outcomes as a standard part of their clinical practice. Information on how well clients are doing, including information from standard measures, provides useful feedback to the clinician and provides opportunities to assist the client in preventing relapse. On the other hand, only information that can be used should be collected. There is no point in collecting extensive information on the client's alcohol and drug consumption, if the only information that is used is whether the client is abstinent. Similarly, it is a waste of time to give clients a battery of standardized tests at follow-up, if the program lacks the resources and expertise to analyze the information. Finally, information will most likely have a useful impact on the program if this information pertains to specific program goals or client goals. For example, if part of treatment is assertiveness training, measuring change in assertiveness among clients would be useful. However, if assertiveness is not an area addressed by the program, it would be more useful to select other outcome measures that *do* pertain to program objectives.

In summary, a program can make the best use of standardized outcome information when:

- **the program has a clear rationale (a clear understanding of what is done in the program and the changes expected for clients as a result of the program)**
- **the program has specific goals for the clients (e.g., abstinence, higher self-esteem, stable employment)**
- **the program has (or can get) the resources and expertise to use the information once it has been collected.**

How to Begin to Use Standardized Outcome Measures

It is recommended that programs begin by using standard outcome measures in a limited and gradual way. Rather than attempting to put together a full package of measures for assessing outcomes, it is suggested that program staff identify a small number of outcome questions that are most central to the program's objectives and select the tools that can address these specific outcome questions. Gradual implementation is recommended for two reasons. First, experience with a limited number of outcome questions will provide a realistic estimate of the resources that will be required to implement a more complete package of outcome measures. Second, and perhaps equally important, limiting the scope of the initial effort makes it more likely that the information will be examined and used. As the initial information is used by the program, the kinds of outcome questions that the program wishes to address become clarified. At that point, decisions can be made as to the ultimate scope of outcome measurement efforts. In general, it is always better to collect a small amount of information that will be used than to waste time by collecting a lot of information that no one has the time or inclination to analyze.

The following are some suggestions for selecting measures from the directory:

- **First review the directory to find out what is available that relates to your program goals and general information needs.**

- **Select measures that could be added easily to regular clinical follow-up. Clinical follow-up questions might include: How is the client doing? Are there any outstanding problems? Did the client meet his or her goals? Standard scales might be used to assess recent alcohol and drug use, self-esteem, etc.**

- **Select particular measures that provide helpful clinical information during follow-up. For example, the Situational Confidence Questionnaire provides a measure of how confident the client feels about resisting the urge to drink in particular contexts. Discussion of these contexts with the client may help to prevent the client from relapsing.**

- **Select measures that relate to your program goals and can contribute to your understanding of potential program impact. For example, if the goals of your program include improving the clients' self-esteem as well as reducing alcohol consumption, you might wish to measure both self-esteem and alcohol consumption at follow-up. Does self-esteem increase and alcohol consumption decrease? Is there a relationship between whether clients improve their self-esteem and whether they reduce or eliminate alcohol consumption?**

- **Use measures in ways that will aid in improving the treatment that you provide. For example, if you think that your program works better for some type of people than others, you might confirm this by comparing the outcomes for the group that you expect to do well with the group expected to do worse.**

Figure 1 shows an example of a standard format that could be used to store and analyze information from standardized measures administered to clients at various points of time. This form contains a column for listing life areas that might be monitored and a scoring template for total scores from the measure as recorded at different times during follow-up. These scores can be used clinically in examining a particular client's profile. In addition, the form can be computerized and average scores can be interpreted in relation to other client or program variables. For example, a particular program might find that females improve more than males or that clients from one referral source (e.g., self referral) do better than clients from a different referral source (e.g., corrections).

As is apparent from the template, even using total test scores results in a fairly complex data set since tests are likely to be administered at several points in time (in order to monitor change). Working with such a data set and using it to answer specific questions will take some learning and practice. Nevertheless, it is apparent that staff of many programs are highly motivated and sufficiently sophisticated in documentation to begin the challenging task of addressing some of their major outcome questions.

To use standardize outcome measures:

1. **select key life areas where**
    - **(a) change is a high priority for most clients of the program (e.g., alcohol use, self-esteem), and**
    - **(b) an appropriate measure is available**
2. **begin administering the measure at initial assessment and during clinical follow-up**
3. **analyze the data that you obtain and interpret results (seek consultation from others if needed; discuss what the results mean with staff and clients)**
4. **try to find ways to use the information**
5. **(a) If 1. to 4. were successful, consider expanding outcome measurement to other life areas.**
    - **(b) If the process was unsuccessful, try to identify where the process failed, get advice from experts (if necessary), and start again.**

Figure 1
OUTCOME MEASURES SUMMARY FORM
(Template)

CLIENT: ______________________________

Life Area	Measure Used	Pre-Admission Score: Date: ______	Discharge Score: Date: ______	1st Follow-up Score: Date: ______	2nd Follow-up Score: Date: ______	3rd Follow-up Score: Date: ______	4th Follow-up Score: Date: ______

Interpreting Findings from Standardized Outcome Measures and Relating These Findings to Other Outcome Data Regarding the Client

The measures included in this directory are intended to be used to assess specific aspects of functioning at follow-up. Clinical follow-up also involves assessing more global outcomes - such as, assessing the client's general well-being, whether his or her goals were met, and whether the client needs additional help. If the client generally seems improved, and standardized measures show improvement, the two types of information act to confirm one another. On the other hand, if the results from a standardized outcome measure are in conflict with clinical impressions, there are several possible explanations, including:

(a) the clinical impression is correct and the standard measures are wrong;

(b) the standard measure is correct and the clinical impression is wrong;

(c) both are correct (even though they conflict); and,

(d) both are wrong.

Taking point (a), there are a number of ways that standard measures can be inaccurate. For example, official records may provide generally valid estimates of clients legal charges but be inaccurate for a particular client because of bureaucratic error. Alternatively, a client may have different life circumstances than those of the samples used to validate the measure, or the client may not understand the items on a questionnaire or answer carelessly. When clinical impressions indicate that a standard measure is in error, it is often possible to identify the reasons why a normally valid measure is invalid in particular circumstances.

It is also possible for clinical assessments to be wrong. The clinician might be biased in the way he or she interprets information from the client. Or the client might wish to present a favourable impression. Sometimes, the standardized measures can provide objective information that can alert the clinician that problems may still exist or, alternatively, that problems are not as bad as they seem.

It is also possible, however, for information on standardized measures to conflict with clinical impressions and for both to be correct. This apparent difference may be due to differences in the type of information collected - clinical impressions tend to be more general while the standard measures (included in the directory) tend to measure fairly narrow aspects of life functioning. For example, the clinical impression could be that a client has improved substantially in overall life functioning but a standard measure of self-esteem indicates no change. Although global improvement might be expected to result in higher self-esteem (i.e., that the clinical impression and a standard measure would both show positive change), differences from the two approaches can reflect valid differences - that is, the client has improved generally but that self-esteem, specifically, has not improved.

Standardized measures provide useful information regarding the client's functioning in specific life areas. However, standard measures are only one type of information. Clinical assessment of the client's progress also provides necessary information.

A Summary of the Purpose and Uses of the Directory of Outcome Measures

The following points provide a general summary of the issues covered in this first part of the directory.

- The directory of outcome measures was developed to provide programs with information on existing valid outcome measures of addictions treatment.

- The directory contains measures of substance use and problems. It also contains measures of other life areas that may be relevant to addictions treatment.

- Program managers need to take into consideration the characteristics of their clients in selecting measures from the directory.

- The directory includes only existing measures that have been shown to be suitable for use as outcome measures for addictions treatment. No measures were found for some life areas or for use with certain populations. These gaps indicate areas where development and validation of measures still needs to be done.

- Programs will achieve the most benefit from measuring outcomes if they identify only a few key areas related to their client and program goals and measure those areas.

- Outcome measures are necessary but not sufficient to evaluate program effectiveness.

- Standardized outcome measures can be used to supplement clinical information collected at follow-up.

The main functions of the directory are the following:

- **To provide programs with information on existing valid standardized outcome measures**
- **To provide a foundation for developing and validating new measures to meet more of the needs for outcome measurement in the addictions field.**

NOTE: In the process of developing the directory, issues have been raised about uses of the directory of outcome measures, as well as how the directory relates to other assessment and evaluation activities. Clarification of these issues is provided in the Supplement to Part I.

Supplement to Part I

Differences Between Outcome Assessment and Initial Assessment

Similar concerns of reliability and validity are relevant whether a measure is used at initial assessment or at follow-up, and, generally, many of the same life areas are measured. In fact, in many instances, outcome is assessed by using exactly the same measures at assessment (pre-test) as at follow-up (post-test).

There are differences, however, in the two types of assessment relating to the goals of each. At initial assessment, there are a number of goals only one of which is to obtain pre-test information. In particular, these data are used for treatment planning, screening for problems needing immediate attention, and involving the client in the treatment process. In addition to the demographic information collected (e.g., date of birth and sex), information may be collected on the lifetime occurrence of specific events, such as number of years of drinking, number of years of steady employment, childhood history of sexual abuse, and family history of drinking. These may all be important considerations in determining the appropriate treatment response but would not typically be areas for outcome measurement.

Outcome assessment can be used for clinical purposes (e.g., ongoing support, crisis intervention) as well as evaluation. The primary distinction of outcome assessment is that it pertains to a restricted timeframe, namely, the time period since treatment was begun. Questions regarding lifetime occurrence of events, childhood events, or family history would not be repeated at follow-up as these would not have changed. In other words, sensitivity to change is the major characteristic that differentiates outcome measures from initial assessment measures. Sensitivity to change may even determine how the information is collected. For example, while at initial assessment, it may be critical to determine whether a client meets a *diagnosis* of depression, a more *quantitative* approach to depression perhaps on a scale of 1-30, will provide a more sensitive measure for determining whether a client is more or less depressed following treatment.

In sum, there is an obvious similarity between initial assessment and follow-up assessment. The general approach to assessment is the same in each case, but differences on specific aspects of assessment occur as a function of differing goals of the two points in the treatment process.

Measuring Outcomes Versus Process Evaluation and Quality Assurance

Process evaluation is the term used when the focus of the evaluation is on describing program objectives, program delivery and the characteristics of program recipients. In general, it is not useful to devote a lot of resources to investigating outcomes without having a very good understanding of program objectives (*What outcomes is the program trying to achieve?*), program delivery (*Is the program being implemented in such a way that desired outcomes are likely to be obtained?*), and program recipients (*Are the clients of the program drawn from the intended target population, and are they likely to benefit from the program in the expected manner?*). Many programs have addressed process evaluation at least to some extent, and a number of programs have completed basic evaluation groundwork that would justify them beginning to address outcome evaluation issues.

Quality assurance evaluation addresses slightly different issues than process or outcome evaluation and tends to cut across the various stages of evaluation. Typically, quality assurance is the process whereby a program is judged to meet a set of external standards. For addictions programs, these standards range from having clearly-specified objectives to having fair employment practices to providing a safe environment for clients. As knowledge and practice in a field change, these standards are revised accordingly. Since the process of quality assurance is to ensure that programs meet a set of specified standards, this process may or may not include outcome assessment depending on the standards.

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PART II. GENERAL MEASUREMENT ISSUES

How a Measure is Validated

There are different types of measures that vary in their degree of difficulty to develop and validate. For some life areas, developing a meaningful measure that meets accepted standards of validity can take years. Other types of measures are fairly straightforward. For example, recording the gender of a person is a simple and valid type of measure.

Another fairly straightforward measure is employment status. At any particular point in time, it is usually fairly easy to define whether the person is employed full-time, employed part-time, attending school, unemployed, and so on. However, measuring employment status is not as simple as measuring gender. First, it is fairly easy to give a false response regarding employment. Experience in most settings suggests that people do not usually give a false response, but it is still a possibility. Second, in measuring employment status, the questioner typically wants to find out not just the employment status of the person today, but the person's usual employment status. If during the past year the person spent some time being employed full-time, some time unemployed, and some time on disability, measuring *usual* employment status is problematic. There are other definitional problems. For example, what is the cutoff in hours per week between working part-time and working full-time? How should the work of prostitutes, drug dealers, the unpaid grandmother who baby-sits grandchildren while the mother works, or the person who "volunteers" 15 hours per week, be classified. Nevertheless, measuring usual employment status is considered to be one of the more straightforward measurement problems. A simple question to the person regarding employment during the past year is generally accepted as a valid measure by most scientific disciplines.

The more difficult and controversial measures are those that measure abstract constructs. A good example of such a construct is depression. There has been an enormous amount of effort invested in developing questionnaires that accurately measure depression. Part of the problem lies in the abstraction. Employment status is a concrete phenomenon. We can see a person at the worksite being employed. Depression, however, is a phenomenon that we believe to be real, but we cannot see or touch it. A hundred people could go to a woman's place of employment, watch her work, see her pay cheque, confirm her hours - and all 100 would say, "Yes, this person is employed." On the other hand, 100 people could talk to a woman and there would be little agreement on whether she is depressed (e.g., "She's a bit down but not really depressed.") and little agreement on the level of depression that the woman is experiencing. One way to address this is to ask the woman herself how depressed she feels. The problem with global subjective measures, however, is they do not necessarily have the same meaning from one person to the next or from one time to the next (for the same person). For example, a generally cheerful person can be going through a slump and describe himself as "very depressed"; whereas, a profoundly depressed person can be going through a good period and describe himself as "not too depressed". Alternatively, a 19 year old might report himself as "very depressed", but then when interviewed five years later report; "I used to think I was depressed but that was nothing compared to how depressed I feel now!"

Thus, the problem in measuring depression is to develop an *objective* measure of depression that is a *true* measure both across and within individuals. The desired measure would operate something like measures of blood pressure - that is, it is meaningful to say that person A has higher blood pressure than person B or that person A has higher blood pressure now than she did five years ago. To develop this type of measure for depression, as with many other abstract psychological constructs, the usual strategy is to develop a questionnaire in which people rate the extent to which they have experienced the various feelings and behaviors that have been determined to be part of the construct of depression.

In the following discussion on developing and validating measures, the main considerations relate to measures that are intended to assess abstract constructs such as depression. The abstract measures are the most difficult to develop and validate. At the same time, however, many validity issues also apply to concrete measures. For example, being arrested is a concrete, easily observable event - but asking a person whether he has been arrested will not necessarily elicit a valid reply. Similarly, whether or not a person consumes alcohol is a concrete event, but there are a number of validity issues regarding the actual measurement of alcohol consumption over an extended period (e.g., 6 months). The following sections describe some of the main considerations in assessing the reliability and validity of a measure or instrument. A summary of issues is provided first, followed by a more detailed description of each issue.

Correlation: The most commonly used concept in research on the reliability and validity of measures is the correlation. Two variables are said to be positively *correlated* when those who score highly on one variable tend to score highly on the second. For example, age and grey hair are positively correlated. The older the person is the more likely he or she is to have grey hair. The correlation is not perfect, since some older people do not have grey hair while some younger people do. But, in general, the two characteristics go together (i.e., aging and grey hair). Examples of correlation commonly used in measurement research include: Pearson *r* for interval data (data where the numbers reflect meaningful values - i.e., 16 is 1 unit higher than 15, just as 3 is 1 unit higher than 2, etc.); *tau b* or Spearman *rho* for ordinal data (i.e., a rating of 5 is more than 4 and 4 is more than 3, but there is no evidence that the difference between 5 and 4 is the same as the difference between 4 and 3), and Chi-squared (χ^2) for categorical data. Correlation coefficients vary between 1 and -1. A correlation of 1 reflects a perfect positive correlation, 0 indicates no relationship, and -1 indicates a perfect negative relationship.

Summary of Issues Pertaining to the Reliability and Validity of a Measure or Instrument

Reliability	• Reliability is the term used to describe how **consistently** a scale or instrument measures something • The three main factors that affect reliability are: 1) measurement error (how sloppy is the measure - e.g., a rubber ruler) 2) stability of the measure over time 3) stability of the measure over different situations.
Validity	• Validity is the term used to describe how **accurately** an instrument measures what it is supposed to measure.
Content Validity	• That the instrument includes all known aspects of the phenomenon being measured.
Construct Validity	• That the instrument measures only the intended phenomenon.
Other Aspects of Validity	• Validity is a judgement made on the basis of the accumulation of evidence: 1) that the instrument is highly correlated with alternative measures of the same phenomenon 2) that the instrument is positively correlated with measures of similar phenomena 3) that the instrument is negatively correlated with measures of opposite phenomena (e.g., a person who scores high on a happiness scale should score low on a depression scale) 4) that the instrument predicts some future event consistent with what is expected from the phenomenon being measured (e.g., a person who scores high on alcohol consumption would be expected to be more likely to develop liver cirrhosis).
Measuring Change	• A scale may be valid but not sensitive to measuring change. For example, classifying a person as underweight, appropriate weight or overweight may be valid as a general measure, but not very useful for measuring change. A person may weigh 250 lbs at time 1 and 200 lbs at time 2. Both times the person may be correctly classified as overweight, but such gross measurement is not sensitive to the fact that the person has lost 50 lbs! • Assessing an instrument's ability to measure change involves consideration of a number of issues including: number of points on the scale, how the information will be interpreted, and the general accuracy of the instrument.

Psychometric Issues

Reliability is the term used to describe how *consistently* an instrument measures something. *Validity* is the term used to describe how *accurately* an instrument measures what it claims to measure. If an instrument is valid, then it must also be reliable. However, the converse is not true, in that an instrument can be reliable without being valid. For example, a bathroom scale that consistently points to the weight of a person as three kilograms lower than the person actually weighs is reliable, but it is not valid. Thus, validity is the more critical issue. Unfortunately, it can be difficult to demonstrate the validity of a measure since validity is usually assessed by the accumulation of evidence. Rarely is it possible for a single study to demonstrate unequivocally the validity of a measure.

Reliability can be measured more directly and more easily than validity. Consequently, the validation of measures usually starts with the assessment of reliability. This is an efficient strategy since a measure must be reliable in order to be valid. If a measure cannot be shown to be reliable, there is no point in addressing more difficult questions of validity.

Reliability

The three main factors that affect reliability are: measurement error of the instrument, the stability of scores on the measure over time, and situational variability in administering the measure.

Measurement error is a function of the number of items on the measure and the type of items. For example, if a person is asked how dependent on alcohol he or she feels, this one question may be assumed to be vulnerable to considerable measurement error - subject to fluctuation in how the person defines dependence, how the person feels that day, and so on. If instead, the measure contains 10 questions relating to experiences of alcohol dependence, the average of the responses to these questions will be more reliable than the response to any single question. If all 10 questions reflect a single construct (believed to be alcohol dependence), this also reduces measurement error - making it more likely that the measure is a reliable measure of a single construct. The most common estimate of reliability relating to measurement error is Cronbach's *alpha* (α). Cronbach's *alpha* is usually termed a measure of internal consistency, but it is based both on how highly correlated the items are with one another and the number of items. In sum, the best first step towards constructing a reliable measure is to use a number of highly correlated items.

Another concern of reliability is the *stability of scores on a particular measure over time.* If a person scored low on a test of alcohol dependence one week and the next week scored high on the same test, one would have doubts about the reliability of the test. Alcohol dependence is considered to be a relatively enduring phenomenon that would not be expected to change drastically within one week (although dependence might change greatly over a longer period of time such as a year). Fluctuations in scores in the short-term would suggest that the scale is not measuring the construct of alcohol dependence as it is commonly understood.

The *conditions under which a person responds to a measure* may also affect its reliability. For example, if the scale is administered as part of an interview, the characteristics of the interviewer may influence the responses, thus reducing the reliability of the measure. Even for self-report scales, the circumstances of completing the scale may influence responses. For example, a person may respond differently to an alcohol dependence scale completed for his probation officer than if he were completing the scale as part of intake into treatment.

Validity

Validity is usually assessed with the accumulation of evidence and there are a variety of terms that are often used to describe the different types of evidence (e.g., predictive validity, concurrent validity, etc.). For the present purposes, two special kinds of validity are described by name (content validity and construct validity) and all other types of validity are described under other evidence of validity. Content and construct validity are special in that they apply primarily to abstract measures and pertain to the definition of the phenomenon being measured.

Content validity. A measure is said to have adequate content validity if it appears to include all known aspects of a particular phenomenon. Satisfying the standards of content validity usually occurs at the stage where the measure is being designed. For example, if depression is known to be characterized by 10 different features (e.g., low energy, feeling blue, trouble sleeping), a measure of depression should tap all of these features in order to be content valid. In practice, there is an ambiguous aspect to satisfying content validity, in that all the characteristics of a particular phenomenon may not be known. In addition, in terms of an outcome measure, it may be appropriate to measure only those aspects of a phenomenon that are possible to change as a result of treatment.

Construct validity. While content validity involves ensuring that all characteristics of the phenomenon are measured, construct validity usually involves demonstrating that *only* characteristics of the phenomenon are measured (i.e., that the measure reflects a single true phenomenon) and that the phenomenon measured is the intended one. For example, there has been criticism of existing measures of depression because some of these measures include items on other related but *distinct* constructs such as self-esteem and anxiety. Although construct validity is a concern at the time of the design of the measure, it is usually demonstrated by collecting data once the measure has been developed. Estimates of both reliability and validity are used to support the construct validity of a measure.

Other evidence of validity. The following are examples of the types of evidence used to assess the validity of a scale:

(a) that the scale is highly and positively correlated with other measures of the same construct (e.g., a new shorter or easier-to-use measure of alcohol dependence might be validated against existing measures for which validity has been demonstrated). For non-abstract measures, this type of validation can be fairly conclusive. For example, self-report of legal charges can be checked against police records. If police records are known to be accurate, a high correlation with police records would suggest that self-report is also accurate.

(b) that the scale is positively correlated with measures of similar but not identical constructs (e.g., higher alcohol dependence should be associated with higher alcohol consumption).

(c) that the scale is negatively correlated with measures of constructs that are believed to contradict the phenomenon being observed (e.g., a high score on perceived control of drinking would be expected to be associated with a low score on alcohol consumption).

(d) that the scale predicts some future result assumed to be related to or at least consistent with the construct that the scale measures (e.g., a high score on alcohol consumption in middle age might be expected to predict liver cirrhosis in later life).

Satisfying these criteria of validity is rarely an all-or-nothing proposition. For example, while a measure such as alcohol dependence is expected to be positively associated with a related but different measure such as alcohol consumption, there is interpretation involved in how high this correlation should be. If the constructs are believed to be closely related, then the correlation should be fairly high. However, if the correlation is extremely high, one might be led to question whether two *distinct* constructs are actually being measured.

In summary, validity is usually addressed by first confirming the reliability of a measure and then by the accumulation of correlational evidence that supports the interpretation that the measure is valid.

Measuring Change

Often the use of outcome measures involves pre- and post-testing. Thus, there is a concern not only with the validity of a measure at any one time, but also the validity of the measurement of change from pre- to post-test scores. There are distinct problems in measuring change that need to be addressed in order to use a particular scale as an outcome measure. These are technical issues that will be discussed only briefly here. Nevertheless, they should be noted in terms of selection of instruments for inclusion in the directory, as well as with regard to the limitations of measures when used. The major issues in measuring change include: sensitivity, scaling, and regression to the mean.

Sensitivity/responsiveness. A scale is said to be sensitive or responsive to change if a real change in the client's status is reflected by a change in the client's score on the scale. Usually, the main determinant of sensitivity is the range of scores on a scale. That is, a yes/no response would generally be less sensitive to identifying change than a ten or five-point scale. For example, using a dichotomous measure of alcohol dependence (dependent/non-dependent) is unlikely to measure anything but extreme changes in dependence. A person could be rated as dependent at intake and, although the person became much less dependent after treatment, still be rated as dependent at follow-up. In this case, the person would appear not to have changed at all when in fact, the person really did change. This is an instance of an *insensitive* measure leading to inaccurate findings. It is equally important, however, that scale scores be stable so that a change in the client's score reliably reflects a change in the client's status (rather than random score variations).

Scaling. Scaling considerations relate to the interpretation of change scores. Consider, for example, a dependence measure that provides a score from 0 (no dependence) to 40 (extreme dependence). If person A's score changes from 35 at intake to 25 at follow-up and Person B's score changes from 10 at intake to 0 at follow-up, both have reduced their dependence score by ten points, but is it accurate to say that both have changed the same amount? It might be more difficult to go from a score of 35 to 25 than from 10 to 0 (or vice versa). Scaling issues have been addressed for very few measures, but another example can make the potential pitfalls relating to scaling more obvious and the need for addressing scaling questions more apparent. With regard to school grades, most people would agree that it is easier to move from a 65 to a 70 average than from a 95 to 100 average. In this case, a 5 point change at the high end of the scale is not considered to be equivalent to a 5 point change at the middle of the scale. Scaling is not necessarily a major problem in measuring client outcomes following addictions treatment, but should be considered when interpreting results, especially when two groups (e.g., males/females) who begin treatment at different problem levels are being compared.

Regression to the mean. Regression to the mean is a term used to describe the tendency for high scores to become lower on retest and low scores to become higher. This phenomenon reflects statistical laws as well as real changes among people. Statistical regression to the mean occurs because scores are only estimates of the person's true status. Thus, by random error alone, at least some initial high scores will be inaccurately high and the next testing will likely show a lower score. The more accurate the measure, the less that statistical regression to the mean is likely to occur.

Regression to the mean can also reflect real changes in people where unusual behavior returns to usual behavior. For example, some persons may have been motivated to enter treatment because their recent alcohol consumption had been unusually high. At least some of these individuals would reduce their drinking and return to *usual* levels without any treatment. Thus, individual change scores can inaccurately make it look like a person is either getting better or worse when really the person is simply returning to his or her long-term usual pattern from a short-term unusual pattern.

As with scaling considerations, regression to the mean is not necessarily a concern for programs assessing client outcomes. However, it should be considered when interpreting results, especially when groups who differ on initial scores are compared. For example, it might be found that heavier alcohol consumers in a treatment program reduce their consumption more than lighter consumers. This cannot necessarily be interpreted as implying that the program is more successful with heavier consumers as this result might be expected on the basis of either regression to the mean or scaling differences.

Conditions for Valid Use of Outcome Measures

Most of the measures provided in this directory are questionnaires that the clients complete themselves or forms that are completed in an interview with the client. The measures selected for the directory are ones that have been demonstrated to be generally valid. The circumstances under which the client responds to the questions, however, can affect the validity of the measures. Several documents have described in detail the optimal conditions for client assessment (Sobell, Sobell, & Nirenberg, 1988; Sobell, Toneatto, Sobell, & Shillingford, in press, 1992). In addition, the topic of validity of self-report is discussed in the section of the directory on substance use and abuse. The following box lists some necessary conditions for valid testing.

Conditions for Valid Use of Outcome Measures:

- **client is drug-free**
- **the setting is nonthreatening and nonjudgemental**
- **the client does not feel pressure to respond in a particular way**
- **the client is aware that information is available from other sources to confirm what he or she reports**
- **the person administering the measures should be able to communicate clearly with the client, and the measures should be easily understood by the client.**

The following points describe some of the main issues in optimizing the validity of clients' responses:

- The client should be drug-free when responding. Administration of the measure should be postponed if there are any signs of alcohol or drug use. In addition, administration of most measures should also be postponed if the client is undergoing acute withdrawal. Where possible, the client's drug-free status should be confirmed by additional sources of information such as a breathalyzer test.

- The circumstances under which the client responds to questions should be nonthreatening and nonjudgemental. Clients should be assured of confidentiality and that the information that they provide will be used for clinical or research purposes only. The respondent should feel free to respond truthfully without being labelled, put down or in any way judged.

- The client should not feel pressure to respond in a particular way and efforts should be made to eliminate any circumstances that might bias the client's responses. For example, although some clients may minimize the extent of their problems at pretreatment assessment, others may exaggerate their problems in the belief that this will help them to obtain treatment more quickly. Similarly, at follow-up, clients may be reluctant to report poor outcomes for fear of disappointing their therapist or making the program look bad. The person administering the measures should believe and should communicate this belief to the client that it is in the client's best interest and the program's best interest that information the client provides be as accurate as possible. Where these circumstances are not true, valid outcome measurement may not be possible. For example, some clients are required to abstain from alcohol and drugs as a condition of probation or parole. Unless absolute confidentiality can be assured to the client, clients under these restrictions are likely to provide inaccurate reports.

- The client should be aware that information is available from other sources to supplement the information provided by the client. This may reduce any tendency to bias responses. For example, if clients are aware that family members are involved in treatment, they may be more open initially about aspects of their life that are likely to become known anyway through the involvement of family members. Thus, putting on a "false front" (either to look good or look bad) may be less likely to occur when there are multiple sources of information.

- The measures should be easily understood by the clients. In addition, the person administering the measures should be able to communicate clearly with the client.

Developing New Measures

As has been described in the preceding sections, a new measure cannot be assumed to be valid. Supporting evidence that a scale is able to measure what it is intended to measure is required before the scale can be used with confidence. Information collected using an invalid measure can lead to misleading conclusions about how well clients are doing or about the effects of treatment. Therefore, it is nearly always preferable to use an existing measure of demonstrated validity rather than developing and using a new measure of unknown validity. The directory is intended to provide addictions treatment programs with easier access to existing valid outcome measures.

Sometimes, however, no validated measure can be found for obtaining particular information or for use with specific populations. The directory contains some help for exploring options for acquiring this information. The annotated bibliography following Part I lists a number of sources that contain measures that did not meet the criteria for inclusion in the directory. While such measures need to be used with caution when applied to new populations (e.g., measures that have been validated for use with the general population but not yet used with clinical addictions samples), they are likely to provide better information than if a completely new measure were developed. In some cases, it may be necessary to customize an existing measure or even develop a new measure. This should be a last resort but is sometimes required, particularly in areas such as client feedback. Some help in developing a new measure is provided in the appendix to the client feedback section. The committee recommends that if programs develop new measures (or use measures in new ways), they should seek consultation from research/evaluation experts unless such expertise already exists among program staff.

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PART III. MEASURES OF SUBSTANCE USE AND ABUSE

Although addictions treatment programs may have multiple goals for clients, the primary goal almost always relates to the reduction, if not elimination, of substance use and abuse. Thus, the primary outcome measures relate to the use and consequences of alcohol and other drugs.

Basic Measures of Substance Abuse

A crude, but simple way to assess substance abuse is using the dichotomy: abstinent/non-abstinent. If the goal of the program is total abstinence, those clients who achieve total abstinence from all drugs have clearly obtained successful outcomes.

Measuring only abstinence, however, is limited, as it implies a single dichotomous measure of outcome: success/failure. On average, across different types of alcohol treatment programs, only a small proportion of clients are able to maintain total abstinence for 12 months following treatment (Miller & Hester, 1980; Riley, Sobell, Leo, Sobell, & Klajner, 1987). For abusers of drugs other than alcohol, abstinence rates depend on the age and other characteristics of the clients, the type of program, and so on, but would generally not be as high as abstinence rates for alcoholism treatment.

In addition, research has shown that many of the "failures" by a strict abstinence criterion actually achieve considerable improvement in substance abuse and other life areas following treatment. Some are able to reduce substance use, while others manage to maintain abstinence most of the time (with some lapses). To classify these clients the same as those who continue to abuse substances at pre-treatment levels, provides an inaccurate picture of client outcomes following treatment. Furthermore, if one objective of monitoring client outcomes is to understand program effects, it is important to monitor not just abstinence, but also deterioration and improvement in substance abuse.

Sources of Information on Consumption and Consequences

There are three general sources of information about a client's substance consumption and consequences:

1. self-report (i.e., asking the client)

2. biochemical measures (e.g., urine tests, liver tests)

3. reports from others about the client (e.g., spouse or other family member, court records).

Since each of the sources has its strengths and weaknesses, the use of multiple sources is recommended where possible. Some of the major strengths and weaknesses of each approach are summarized in the following.

Client Self-Report

Strengths. Self-reports are the most straightforward and justifiable of all sources, simply because the client is most likely to know how much he or she has consumed and what problems have occurred as a consequence. Furthermore, self-reports are easily assessed by most programs. Finally, there may also be a therapeutic benefit in terms of ongoing support by obtaining information from clients at follow-up.

Weaknesses: Clients may inadvertently or purposely provide inaccurate reports (see next section on the validity of self-reports).

Biochemical Measures

Strengths. Such measures are objective.

Weaknesses. Most physiological tests provide an estimate of only a part of the total picture. For instance, a liver test may indicate long-term alcohol abuse but not how much alcohol was consumed, and a urine test can address whether a substance was used in the recent past but will not provide a measure of typical use. Also, many tests fail to identify a significant proportion of alcohol abusers.

Reports from Others About the Client

Strengths. Reports from others are primarily useful in corroborating the client's self-report.

Weaknesses. The reports of others have been found to be incomplete in terms of measuring both consumption and related problems. For example, a spouse may have a general idea of how much the client is drinking but not be aware of the drinking-related problems at work. Similarly, court records can provide information about legal consequences of drinking but no other information about alcohol use or abuse.

As has been discussed in a number of papers (e.g., Midanik, 1988; O'Farrell & Maisto, 1987; Sobell & Sobell, 1990), there is no gold standard for measuring alcohol or drug abuse. The measures of use and consequences discussed in this directory are primarily self-report measures (see the following section on the validity of self-report measures). Because of the incompleteness and inaccuracies of other measures, self-report is recommended as the primary method for measuring use and consequences under most circumstances. It is also recommended, however, that other sources of information be used to confirm the validity of self-reports in each case.

Validity of Self-Report Measures

There is a considerable literature on the validity of self-report by alcohol and drug abusers. Self-report was believed to be questionable on at least two grounds: commonly observed "denial" by substance abusers and consistent under-reporting of consumption in general population surveys. In general, these concerns have not been supported. There is a growing body of evidence to suggest that, if the assessment is done properly, self-report measures are as accurate or more accurate than other measures for most purposes.

A number of analytical reviews on the validity of self-report have been published in recent years (Babor, Brown, & Del Boca, 1990; Babor, Stephens, & Marlatt, 1987; Maisto, McKay, & Connors, 1990; Midanik, 1988; 1989; O'Farrell & Maisto, 1987; Sobell & Sobell, 1986; Sobell & Sobell, 1990), including an entire issue of the journal, *Behavioral Assessment* (*Vol. 12(1)*) devoted to the topic. Most reviewers concluded the following:

- self-report is an important and unique source of information
- if conditions of assessment are appropriate, self-report of substance use and consequences tends to be generally accurate
- self-report is not 100% accurate and, therefore, the recommended approach is to obtain information from several sources.

Although a number of authors have stressed the need for more research to evaluate the factors affecting the validity of self-report (Babor et al., 1987; Midanik, 1988; 1989; Sobell & Sobell, 1990), a number of conditions have been identified as useful or even essential for valid self-report (Babor et al., 1990; Babor et al., 1987; Skinner, 1984; Sobell & Sobell, 1986). These conditions include:

- that the client be totally drug-free when interviewed
- that sufficient time has elapsed since last drug-taking to allow for clear responses
- that corroborating data be collected (e.g., breath test, report of spouse), and that the client is aware that these data are being collected
- that confidentiality is assured

- that the clinical research setting be such as to encourage honest reporting

- that care be taken to ensure that questions are clearly worded and valid measurement approaches are used

- that the assessment worker or therapist has established a good rapport with the client

- that the client has no reason to distort reports (e.g., abstinence being a condition of parole).

In sum, existing analyses of the validity of self-report measures support their use for primary outcome data, but it is recommended that corroborating evidence (especially concerning key areas of use and consequences) should be obtained whenever possible, particularly if the goal is to confirm total abstinence (Fuller, 1988).

Other Measures Related to Substance Use or Abuse

Research on alcohol and drug use, abuse and recovery has produced a number of measures that pertain to successful treatment and might be used as outcome measures (Sobell, Toneatto, Sobell, & Shillingford, in press). For example, Annis and colleagues (Annis & Graham, 1988; Annis, Graham, & Davis, 1987) developed the Inventory of Drinking Situations (IDS) and the Situational Confidence Questionnaire (SCQ) (with parallel forms for drugs other than alcohol). The IDS measures the types of situations in which the client tended to drink most heavily in the past. The SCQ measures the level of confidence perceived by the client that he or she will be likely to refrain from drinking in particular types of situations in the future. The IDS (and the drug version, the IDTS) may be used at 12-month or longer follow-ups with non-abstainers to assess changes in drinking or drug use behaviors. The SCQ and other measures of self-efficacy may be appropriate for use as outcome measures to help measure the client's continuing confidence in remaining sober. Recently, other scales have been developed to measure expected or anticipated effects from drinking - both positive and negative (Brown, Christianson, & Goldman, 1987; Leigh, 1989). It is expected that perceived benefits and perceived negative consequences from drinking are likely to affect the treatment process and treatment outcomes. At present, however, the use of these scales as direct outcome measures is still experimental.

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A. Alcohol Consumption

For many addictions treatment programs, alcohol consumption is the key outcome variable. Although total abstinence may be the goal of most programs, even the most successful programs have not been able to achieve this outcome with all clients. In such instances, measuring consumption rather than abstinence can reflect changes in drinking following treatment. Therefore, obtaining an accurate estimate of alcohol consumption pre- and post-treatment is important.

Interpretation of alcohol consumption information:

Examples of ways to quantify alcohol consumption information (most apply to a specific time period such as 6 months):

- number of abstinent days
- number of days when alcohol consumed
- average number of drinks per day
- average number of drinks per drinking day
- maximum number of drinks per day
- number of days until use following treatment
- comparison of drinking before and after treatment over a specified time period (such as 6 months) on the first five examples above
- whether the client maintains total abstinence for a specified time period following treatment
- from the Alberta Alcohol and Drug Abuse Commission: "we often examine client's success in meeting alcohol consumption goals using the following categories: (1) abstainers who met their goal; (2) moderate drinkers who met their goal; (3) those with an abstinence goal who lapsed but improved from previous levels of drinking; (4) those with a goal of moderate drinking who lapsed but improved from previous levels of drinking; and (5) relapsers - full return to former levels of drinking". (A. Dyer, personal communication, January 24, 1992).

Three Approaches to Assessing Alcohol Consumption

Measures of past alcohol consumption can be categorized into three general types: Lifetime Drinking (drinking history), Quantity-Frequency (estimates of average or usual consumption), and the Timeline Followback method (a daily drinking estimation procedure).

Lifetime Drinking History

The *Lifetime Drinking History* method (Skinner, 1979; Skinner & Sheu, 1982; Sobell et al., 1988*b*) illustrates the distinct phases and changes in a person's lifetime drinking patterns (see Example A.1). The data are collected in a structured interview where the client is asked about patterns of alcohol consumption from the first year of regular drinking to the present. The interview takes about 20 to 30 minutes to complete. Such a measure is useful for some purposes but lacks precision for the *most recent* drinking period.

Recommended use. This method is recommended for situations where a lifetime or long-term (i.e., greater than the past year) picture of the person's drinking is desired. Situations where a longer term assessment is useful would include: measuring drinking patterns from adolescent to adulthood; measuring drinking patterns over many years; or the recall of drinking in the distant past from the time of interview (e.g., at 10-year follow-up).

Example A.1
Lifetime Drinking History

Breath Test: *negative*

Page ______ of ______

DRINKING HISTORY

Target Date: *January / 1986*

6 Years Before Target Date: From *Jan./1980* thru *Jan./1986*

DATES	FREQUENCY Days/Month	QUANTITY Drinks/Day	TYPE %		MORNING DRINKING %
From: Jan. 1980 To: Dec. 1983	Average Pattern 16 Maximum Pattern 4	 4-6 10-12	Beer Liquor Wine **Total:**	80% 15% 5% **100%**	_____(1) Yes __√__(2) No
From: Jan. 1984 To: Jan. 1986	Average Pattern 30 Maximum Pattern 4	 5-7 10-12	Beer Liquor Wine **Total:**	55% 43% 2% **100%**	__√__(1) Yes _____(2) No
From: ______ To: ______	Average Pattern ____ Maximum Pattern ____	 ____ ____	Beer Liquor Wine **Total:**	% % % **100%**	_____(1) Yes _____(2) No

*1 Standard (SD) Drink = 12 oz. beer
1½ oz. liquor
5 oz. wine
3 oz. fortified wine
13.6 g absolute alcohol

Liquor: 1 Mickey (12 oz) = 8 drinks
1 bottle (25 oz) = 17 drinks

Wine: 1 bottle (25 oz) = 5 drinks
1 bottle fortified = 8 drinks

Quantity-Frequency Method

The second type of alcohol consumption measure involves averaging methods more commonly known as *quantity-frequency* (QF) methods. QF methods are estimation formulae which gather information about *average* drinking patterns often over a specified time period (usually the last 3 to 12 months). Examples of well known QF methods include the Cahalan QF (Cahalan, Cisin, & Crossley, 1969) and the Rand QF (Polich, Armor, & Braiker, 1981).

There are many variations of the QF approach. In one of the more popular survey versions developed by Cahalan, Cisin, and Crossley, the questions include a frequency scale of drinking (from 3 or more times a day to never), and then repeat questions for each of the three types of beverages (beer, wine and hard liquor) as follows:

Think of all the times you have had beer recently. When you drink beer, how often do you have as many as five or six?

When you drink beer, how often do you have three or four?

When you drink beer, how often do you have one or two?

[Questions are repeated for wine and hard liquor. Recent variations of this approach have used questions concerning higher volumes - e.g., "how often have you had 6-8, 8-10, 10-12, 12 or more?]

Data from QF questions can be used to calculate a number of alcohol consumption measures such as number of drinking days during a specified time period and average number of drinks per day. For example, Khavari and Farber (1978) developed a QF index of two summary measures: (1) a cumulative frequency measure (i.e., number of days that any alcohol was consumed), and (2) an annual absolute alcohol intake measure. These measures are calculated based on a modified version of the QF questions of Cahalan, Cisin and Crossley. Their measure includes the following four questions for beer, wine, and hard liquor (respectively): usual frequency of drinking, usual amount consumed per occasion, maximum amount consumed on any one occasion, and frequency that the maximum is consumed.

An assessment instrument (ASIST) currently used by many addictions programs uses a variation of the QF method (ARF, 1989). Using this instrument, the client is asked to estimate number of days having 0 drinks, 1-3 drinks, 4-6 drinks and 7+ drinks during a typical 28-day period over the prior six months. These are used to compute a score for average number of drinks per day.

Many variations of QF methods have been used in survey and treatment research (for an extensive review, see Room, 1990). QF methods provide reliable information about total consumption and number of drinking days in a given time period; however, this approach cannot provide an accurate estimate of fluctuation in drinking and may mask atypical heavy days which are often associated with health risks (Polich et al., 1981; Sobell, Cellucci, Nirenberg, & Sobell, 1982; Sobell & Sobell, in press; Sobell, Sobell, Leo, & Cellucci, 1988a; Sobell, Sobell, Klajner, Pavan, & Basian, 1986).

Recommended use. This approach provides a quick and easy estimate when information needs are limited to only the total amount consumed or the total number of drinking days in an interval or to specific questions regarding high volume consumption. The QF method, however, is not the best method for measuring *change* in alcohol consumption. For this purpose, the Timeline Followback method is considered more appropriate.

Timeline Followback Method

The third drinking instrument, the *Timeline Followback* (TLFB) method, is a daily drinking estimation procedure that asks people to *estimate* the amount they have consumed each day over a specified time period (ranging from one to 12 months from the date of the interview). Depending on the time period, the TLFB takes about 10-30 minutes to complete. The TLFB method is described in detail at the end of this section (also see Sobell & Sobell, in press).

When using this instrument, people are told to be as precise as possible, but it is also recognized that they are reporting their best guess. Their best guess, however, is better than an "average" guess. Daily drinking is reported using a standard drink format. Several aids have been developed to help respondents recall their daily drinking when filling out the TLFB. The *major* aid is the use of a daily calendar which helps people recall dates and patterns of drinking.

The TLFB has been shown to have very good reliability and validity with a variety of drinker groups including males, females, chronic alcohol abusers, and problem drinkers (Babor, Stephens, & Marlatt, 1987; Sobell et al., 1982; Sobell, Maisto, Sobell, & Cooper, 1979; Sobell et al., 1988a; Sobell et al., 1986).

Recommended use. The Timeline Followback is the recommended method for evaluating major and specific changes in drinking behavior pre- and post-treatment (e.g., percentage of days drinking at certain levels of drinking - low, moderate, high, abstinent days; pattern changes - weekend/weekday patterns).

The Basis for Measuring Alcohol Consumption

It is generally accepted that the amount of alcohol consumed can be calculated by *summing across different beverage types*. That is, two beers, one glass of wine, and two mixed drinks adds up to five standard drinks. Standard drinks[1] have been defined according to the percent alcohol content of different beverages. In Canada, regular beer is usually 5% alcohol, table wine is usually 12%, and hard liquor is 40%. Therefore, one 12 ounce bottle of beer (5% alcohol x 12 ounces = .6 ounces of absolute alcohol) is equivalent to five ounces of wine (12% alcohol x 5 ounces = .6 ounces of absolute alcohol) is equivalent to one and a half ounces of hard liquor (40% alcohol x 1.5 ounces = .6 ounces of absolute alcohol). Usually, when reporting alcohol consumption, clients are provided with a chart of equivalent standard drinks to aid in reporting. There is some lack of precision in that mixed drinks may contain more or less than 1½ ounces and light beer and wine have to be prorated for lower alcohol content, but basically the use of standard drinks provides a reliable quantification of alcohol consumed.

The second foundation of measuring alcohol consumption is the *time-frame over which consumption is estimated*. Although the greatest precision might be obtained by measuring consumption during the previous day or even the previous week, this may not be an accurate measure of *usual* drinking. Particularly, when comparing consumption pre- and post-treatment, the one-week window may be very misleading. For example, in anticipation of treatment, a client might dramatically increase or decrease consumption. For an estimate of pre-treatment baseline drinking, it is optimal to obtain a detailed measure of drinking at least one year prior to treatment. In terms of measuring post-treatment alcohol consumption, estimates of drinking for the entire period since treatment should be obtained.

The final issue of estimating alcohol consumption is the *source of information*. In general, self-report measures, if used appropriately, have been found to be the most accurate and are recommended as the primary measure.[2] However, confidence in estimates can be increased by using a number of different methods to estimate consumption whenever practical, (e.g., self-report; report by collateral; blood, breath or urine tests to measure recent consumption; biological measures of long-term consumption such as liver tests, etc.).

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[1] *Standard drinks were defined before metric measures were in standard use. Obviously, the principle applies equally to drinks measured in metric units.*

[2] *See discussion of the validity of self-report in the previous section.*

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Measure: Timeline Followback Method (TLFB)

The Timeline Followback method was developed to aid in the recall of recent drinking behavior. Accurate daily pre- and post-treatment drinking records can be produced with the help of several memory aids. The TLFB has been subjected to extensive evaluation and provides the most reliable and valid measure of alcohol consumption. The TLFB method takes 10-30 minutes to complete depending on the time period covered and the individual drinking habits. The TLFB has been used with adult males and females in a variety of general population and clinical samples, but published data are not available regarding use with the elderly or specific cultural groups.

Reprinted from: Sobell, L.C., & Sobell, M.B. (1992). Timeline follow-back: A technique for assessing self-reported alcohol consumption. In R.Z. Litten & J. Allen (Eds.), *Measuring alcohol consumption: Psychosocial and biological methods (pp. 41-72).* New Jersey: Humana Press.

APPENDIX A

INSTRUCTIONS FOR COMPLETING THE TIMELINE DRINKING CALENDAR

Using the attached calendar, we would like you to reconstruct your drinking for the time period indicated on the calendar. This is not a difficult task, especially when you use the calendar for reference. We have found calendars useful in helping people recall their drinking. The following are instructions and tips for completing the calendar:

INSTRUCTIONS:

❶ It is important that for *each* day listed on the calendar, there is a number indicating the number drinks you consumed. In reporting your total daily consumption, we would like you to report it in **STANDARD DRINKS** (use the standard drink equivalent card).

❷ On the days that you did not drink any alcoholic beverages mark those days with a "0".

❸ On the days that you did consume a beverage containing alcohol, write in the total number of **Standard Drinks** that you drank on those days. This includes days of combined beverage use. For example, if you drank a glass of wine with dinner and a drink containing 1-1/2 oz. of hard liquor after dinner, you would count that as 2 standard drinks for that day. **The important thing is to make sure that something is filled in for each day.**

❹ In filling out the calendar, we would like you to be as accurate as possible. However, if you cannot recall whether you consumed an alcoholic beverage on Monday or Thursday of a certain week, or whether it was the week of November 9th or the week of November 16th, **give it your best shot!**

The purpose of the calendar is to get as accurate a picture of what your drinking has been like for the indicated time period in terms of number of drinking days and number of drinks per day.

HELPFUL HINTS:

☞ If you have an appointment book or a daily diary available, you can use it to help you recall your drinking,

☞ As you will notice, standard holiday days are marked on the calendar to help your recall; you can also write in special holidays such as birthdays, vacations, celebrations.

☞ Some people have regular drinking patterns and this can help them in filling out the calendar. For example, you may have a weekend/weekday change in your drinking or your drinking may be different depending on the season, or whether you are on holidays or business trips.

ADDITIONAL SUGGESTIONS FOR ASKING FOR TIMELINE FOLLOW-BACK INFORMATION:

➪Incarcerations or Confinements:

When interviewing alcohol abusers, if they mention hospitalizations, treatment stays, or jail periods that occurred in the recall period, it is often easy to start with those events as they are discrete and time bound.

> For example, the interviewer can ask: "You said that you were in a hospital sometime in the last year. What were the dates you were there? Did you have anything to drink during this time?"

NOTE: Stays in jails, hospitals, or residential treatment programs do not preclude frequent drug or alcohol use (see Sobell, Sobell, Maisto, & Fain, 1983). Thus, to obtain accurate data, it is important to assess alcohol use during periods of incarcerations. On the calendar, these days are coded as both incarcerated and an amount consumed is listed.

➪Probing Extended Abstinent or Drinking Periods:

"Were there any times in this recall period when you had **nothing at all to drink**, not even a drop of alcohol?"

> "What was the longest period of total abstinence during this time?"
> "What was the next longest period of total abstinence?"

"What was the longest number of continuous days in a row you were drinking during this period?" (determine dates and amounts of alcohol consumed on each day)

> "What was the next longest period of continuous drinking days?"

➪Other Events:

Sometimes when being interviewed people will report not drinking during a particular period. For example, a person may say "I wasn't working during October, so I had no money to drink, but when I returned to work in May I started drinking." These time periods can be listed on the calendar and then questions can be directed to the time periods around such events.

Sometimes people drink routinely after or at particular events (e.g., bowling on Mondays; hockey on Thursdays; playing pool). To this end, the interviewer can specifically ask the person

> "Were there any times or events where you almost always drank alcohol? For example, ...".

➪Completing the Calendar in a Flexible Manner:

Wherever people feel comfortable in filling out the calendar can be the starting date. People can go forwards or backwards from the interview date or jump around from month to month.

If a person has trouble recalling his/her drinking, try working back from when the person entered treatment. Say "What about this past month, what was your drinking like then?" The most recent months should be the most familiar, and the person might find it easier to reflect upon those periods. Ask questions about special occasions (birthdays, weddings) and use these days as anchors or reference points to help the person better recall his/her drinking.

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SAMPLE TIMELINE FOLLOW-BACK CALENDAR

Interview Date: June 9　　Date of Last Drink: June 8

Follow-back (60 days): April 9　　thru June 7

	SUN	MON	TUE	WED	THU	FRI	SAT
APRIL	1	2	3	4	5	6	7
	8	9 5	10 6	11 8	12 6	13 12	14 16
	15 6	16 8	17 6	18 10	19 0	20 8	21 12
	22 15	23 10	24 12	25 9	26 8	27 15	28 17
	29 8	30 6					

	SUN	MON	TUE	WED	THU	FRI	SAT
MAY			1 8	2 8	3 10	4 12	5 15
	6 7	7 8	8 0	9 6	10 9	11 15	12 17
	13 12	14 6	15 8	16 15	17 8	18 9	19 10
	20 8	21 8	22 9	23 10	24 15	25 8	26 12
	27 5	28 6	29 12	30 8	31 9		

	SUN	MON	TUE	WED	THU	FRI	SAT
JUNE						1 10	2 15
	3 0	4 10	5 6	6 0	7 12	8 Last Drink	9 Today
	10	11	12	13	14	15	16
	17	18	19	20	21	22	23
	24	25	26	27	28	29	30

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STANDARD DRINK CONVERSION

1 Standard Drink (13.6 g absolute alcohol) =

Beer (5%): 12 oz. (341 ml)

Wine (12-17%): 5 oz. or
Fortified Wine: 3 oz.

Hard Liquor (80-proof): 1-1/2 oz.

Wine:
1 bottle (25 oz./750 ml) = 5 standard drinks
1 bottle (40 oz./1.14 L) = 8 standard drinks
1 bottle fortified (25 oz.) = 8 standard drinks

Hard Liquor:
1 mickey (12 oz.) = 8 standard drinks
1 bottle (25 oz./750 ml) = 17 standard drinks
1 bottle (40 oz./1.14 L) = 27 standard drinks

Detailed Review of the Timeline Followback Method (TLFB)

Original Publication:

Sobell, L.C., Maisto, S.A., Sobell, M.B., & Cooper, A.M. (1979). Reliability of alcohol abusers' self-reports of drinking behavior. *Behavioral Research and Therapy*, *17*, 157-160.

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Description: The Timeline Followback method is a procedure for assessing recent pre- and post-assessment drinking behavior. The technique involves asking individuals to retrospectively estimate their actual daily alcohol consumption over a specific time period as they remember it. Subjects are provided with a blank calendar covering the time interval which is to be reconstructed, and are asked to report on the calendar the number of standard drinks consumed each day. Retrospective recall has been evaluated for periods as long as 12 months prior to the interview date.

Direct measurement of drinking using a timeline method can generate a variety of variables and provides different and more precise information on individual consumption levels than other estimation techniques. [For an indepth description of how to use the TLFB, see Sobell and Sobell (in press)].

Target Populations: The TLFB method has been used with a variety of drinker groups ranging from the severely dependent to normal drinkers in the general population. It has been used with such clinical populations as cancer patients (Shirley et al., 1989), liver disease patients (Marbert, Stalber, Thiel, & Bianchi, 1988), arthritic patients (Bradlow & Mowat, 1985), and prescription drug abusers (Sellers, Somer, Sobell, & Sobell, 1990).

Administration: The TLFB can either be administered by an interviewer or self-administered. Subjects should be breath tested prior to the interview to insure they are alcohol-free. Individuals are presented with a calendar and are asked to recall their daily drinking over a specified time period. For clinical populations, it takes 25 to 30 minutes to gather 12 months of data, and a considerably shorter time to gather data for shorter intervals.

Several memory aids and interviewing techniques have been developed to help people recall their drinking. These include the following:

- **Daily Calendar:** Major aid that assists recall of drinking.

- **Key Dates:** Use of holidays, birthdays, newsworthy events, and other happenings meaningful to the respondent to assist recall of drinking.

- **Standard Drink Conversion:** An aid to report combined beverage use and/or nonstandard consumption amounts.

- **Black and White Days:** Identifies periods of invariant drinking and extended abstinence.

- **Discrete Events:** Use of specific events to identify periods of drinking or nondrinking (e.g., arrests, hospitalization, illnesses, employment, treatment participation).

- **Anchor Points:** Identifies drinking behavior that anchors each event or major drinking episode.

- **Boundary Procedure:** Establishes upper and lower limits for reporting amount consumed (i.e., when starting the interview first ask about the most consumed or least consumed on a single day in the reporting period).

- **Exaggeration Technique:** To avoid vague drinking labels or descriptions (e.g., a lot or a little drinking). Present an exaggerated minimum or maximum value to help get the label specifically defined.

Reliability and Validity of the Scale

Reliability: Data derived from a timeline method for assessing recent reports of drinking have generally been found to have high test-retest reliability across many populations of drinkers, including alcohol abusers ranging from severely dependent to mildly dependent (Maisto, Sobell, Cooper, & Sobell, 1979; Vuchinich, Tucker, Harllee, Hoffman, & Schwartz, 1985), male and female normal drinkers in the general population (Sobell, Sobell, Leo, & Cancilla, 1988), and college students (Sobell, Sobell, Klajner, Pavan, & Basian, 1986; Connors, Watson, & Maisto, 1985).

Validity: Evidence for the method's validity derives mainly from clinical populations. TLFB self-reports have typically been validated using (1) verifiable events (e.g., hospitalizations, arrests), (2) established measures of alcohol-related disabilities, and (3) collateral informants' reports of the subjects' drinking.

Besides daily drinking habits, the TLFB can also reflect time spent in jail, in hospital, or in treatment facilities. Studies that have compared such reports with official records generally indicate a high degree of correspondence for both duration and incidence data. An early study by Cooper, Sobell, Maisto, and Sobell (1980) found significant correlations between official record data and TLFB self-report data of number of alcohol-related arrests, hospitalizations and stays in residential treatment over pre-treatment intervals of 30, 90, 180 and 360 days. Correlations for an outpatient sample of male problem drinkers ranged from $r = .42$ (for number of arrests in the 30-day period before treatment) to $r = .93$ (for number of hospitalizations during the 180-day period before treatment). High correlations were also found for a male inpatient sample of alcoholics, ranging from $r = .49$ (for number of arrests in the year prior to treatment) to $r = .91$ (for number of residential stays 30 days before treatment). High correlations were also found by Cooper, Sobell, Sobell and Maisto (1981) between pre-treatment TLFB and official record data for male outpatient and residential treatment clients, and by Maisto, Sobell, Sobell and Sanders (1985) for male alcohol abusers, for both pre-treatment and post-admission events based on TLFB and official record data.

Biochemical studies have found that abnormal liver functioning is related to heavy drinking as reported on the TLFB with r ranging from .33 to .42 between TLFB 30 and 60 day pre-treatment data and two biochemical tests of liver function (Sobell & Sobell, in press). Comparison of TLFB data with scores on the Alcohol Dependence Scale (ADS) (Skinner & Allen, 1982) and the Short Michigan Alcoholism Screening Test (SMAST) (Selzer, Vinokur, & van Rooijen, 1975) provides further evidence for the validity of the TLFB method (see summary of findings by Sobell & Sobell, in press). Higher scores on the ADS were significantly related to a higher level of overall consumption ($r = .52$), a higher number of heavy drinking days ($r = .53$ to .62), and a greater number of mean drinks per drinking day ($r = .52$). Similarly SMAST scores were positively correlated with heavy consumption days ($r = .51$). Low consumption days were negatively correlated with ADS and SMAST scores ($r = -.26$ to -.38 for ADS; $r = -.39$ for SMAST). Finally, positive correlations have also been found in clinical studies that compared client and collateral reports of the clients' drinking with r ranging from .79 to .92 for TLFB abstinence data, .38 to .95 for low alcohol consumption days, and .59 to .82 for high consumption days (Sobell & Sobell, in press).

Ability to Measure Change: Direct measurement of drinking using the TLFB can generate a number of variables and provides precise information on individual consumption levels and, thus, is well suited to measuring change in consumption levels. In several studies with different drinker populations, data derived from a daily estimation method like the TLFB have been shown to be sensitive to changes in drinking behavior (Sobell & Sobell, in press).

Other Forms: A computerized version of the TLFB is in preparation.

Availability: The instrument is not copyrighted and there is no fee for use.

TLFB. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Time-Line Follow-Back Variables Reported
Sobell et al. (1986)	College students	24.1	40	40	80	longest no. of consecutive abstinent days; longest no. of consecutive drinking days; greatest no. drinks any single day; total no. drinks; days abstinent; days 1-3 drinks; days 4-6 drinks; days > 6 drinks
Sobell et al. (1988)	Community sample	31.6	31	31	62	(see Sobell et al., 1986)
Maisto et al. (1985)	Male alcohol abusers in outpatient treatment (4 treatment conditions)	37.8	48	0	48	% days: 1) abstinent; 2) low ethanol consumption; 3) heavy ethanol consumption; 4) jail (alcohol-related (AR)); 5) hospital (AR); 6) residential treatment (AR); 7) incarceration (non-AR)
Zweben et al. (1988)	Couples receiving: - advice counselling - conjoint marital therapy	 41.1 43.6	 23 35	 23 35	 46 70	% of heavy drinking days, moderate drinking days and abstinent days in past year

Note. Only a subset of studies reporting normative data on TLFB variables are listed here.

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B. Drug Consumption

For most addictions treatment programs, the primary goal is that clients become abstinent from both alcohol and all other non-medical use of drugs. When total abstinence is achieved, the measurement of outcome is simple. For the majority of programs and clients, however, complete and permanent abstinence is difficult to achieve (Hubbard et al., 1989; Martin, 1987; Sobell, Sobell, & Nirenberg, 1988). Consequently, there is a need for accurate measures of drug consumption in order to assess the extent to which those clients who are not able to maintain abstinence, are able at least to reduce their drug consumption to less problematic levels.

Problems in Measuring Drug Consumption

To assess whether drug consumption is reduced following treatment, it is necessary to measure and quantify the client's drug consumption both before and after treatment.

If the question were simply, "Does the client use drugs after treatment?" (yes/no), measurement would not be difficult. For the majority of clients of addictions treatment programs, however, the more informative question is likely to be: "Has the client substantially reduced drug use following treatment?" This question requires a pre-treatment estimate of drug use (baseline) as well as a measure of drug use following treatment. In addition, the question requires some ability to quantify drug use in order to determine whether post-treatment use is *less* than pre-treatment use and by *how much*.

As discussed in the section on alcohol consumption, over the last 20 years the addictions field has developed standard approaches to quantifying how much alcohol a person consumes. With drugs other than alcohol, however, there is a host of additional complexities that have prevented the quantification of drug consumption from achieving the level of standardization and sophistication achieved regarding alcohol (see discussion by Martin & Wilkinson, 1989; Wilkinson, Leigh, Cordingley, Martin, & Lei, 1987).

Measuring consumption of street drugs, for example, is problematic because it is very difficult to determine how much of an active ingredient was consumed or even what the actual drug was. Another problem is finding the most appropriate ways to interpret use of the many different kinds of drugs available. With regard to alcohol, it is generally accepted that the important criterion is the quantity of absolute alcohol consumed. That is, it does not matter whether alcohol is consumed in the form of beer, wine or hard liquor, as there is assumed to be an underlying equivalency among all beverage alcohol (according to the % alcohol in each beverage). When several types of drugs are consumed, however, there is no logical equivalency. For example, if a person consumes cocaine every day and marijuana once a week before treatment and following treatment consumes no cocaine but now uses marijuana daily and speed occasionally - is this an improvement? There is no single commonly accepted manner of combining data on drug use to form a single drug use measure (Hubbard et al., 1986; Martin, & Wilkinson, 1989). Although it is generally accepted that use of each type of drug should be assessed separately, the challenge for programs is to find the method of interpreting multiple drug use that can best measure change relevant to the clients of that program. Several methods for combining drug use data to form a single measure will be discussed in this section.

Although it is common among outcome studies of drug use to focus measurement on the primary drug of abuse (Hubbard et al., 1986), it is not valid to interpret use of alcohol and each type of drug as if these were independent behaviors, unrelated to one another. For example, if a person is prescribed a tranquilizer, this may change the pharmacological effects of alcohol or other drugs consumed. A person who was consuming 6 drinks a day and no prescription drugs before treatment and consumes 4 drinks a day plus 5 mg. valium may be experiencing the same effects from 4 drinks (in combination with the drug consumed) as was previously experienced from 6 drinks.

Because of the complexity of drug use behavior and variability of use among different drug use populations, it is not possible to recommend a single drug use questionnaire for use by all programs. For example, a program for youth might find it appropriate to use a very detailed measure of non-medical drug use while having only a global measure of medical use. In addition, for youth, the best quantification may be number of days different drugs are used, as it may be difficult to determine quantities of active ingredients in street drugs consumed. On the other hand, a program for the elderly would include detailed measures of prescription drugs (including compliance, going to more than one doctor, and the greater likelihood of interactions between psychoactive and non-psychoactive drugs); yet, the program for the elderly might only use a general screening instrument for the exceedingly rare use of illicit drugs such as marijuana, cocaine or LSD. Finally, it is becoming increasingly common for addictions treatment programs to take a healthy lifestyle approach, including smoking cessation. Therefore, nicotine products are sometimes included in the measurement of drug use (see examples B.2 and B.5).

This section contains several examples of drug use measures that reflect the state of existing knowledge, general guidelines or principles about asking drug use questions to obtain the maximum accuracy, and a table of drug names and drug classes that can aid in assessing drug use (see Table B.1).

Examples of Drug Use Questionnaires

Six examples of drug use questionnaires are included. Example B.1 illustrates a comprehensive approach to drug assessment and shows the progressive nature of questioning regarding drug use. Examples B.2 and B.3 developed out of the same approach as Example B.1 but provide slightly different presentations. Example B.4 shows the approach taken in the assessment of non-medical drug use by the Treatment Outcome Prospective Study (TOPS) conducted in the U.S. by Hubbard et al. (1986; 1989). Example B.5 is the format currently being used in a multi-site study in Ontario (Ogborne, 1991). Finally, Example B.6 shows a format that was used in an assessment package for the elderly (Saunders, Graham, Flower, & Shea, 1985). All examples illustrate the comprehensiveness required to obtain an accurate assessment of drug use.

Guidelines or Principles for Asking Drug Use Questions

The following suggestions are an attempt to synthesize research experience in measuring drug consumption into principles that program staff can apply in constructing a drug use measure suitable for the use patterns of their client population.

Avoid broad categories for drugs that are primary drugs of abuse or primary problems for the program's target population.

There is no single accepted set of drug categories. Not only are different categories of drugs used with different target groups, but categories change over time as new drugs become available or as rarely used drugs become more popular. Also, drugs within a broad category can vary in the intensity of effects and the types of problems that might result from use. Therefore, the best strategy is to measure major drugs of interest as specifically as possible. It is always possible to collapse drug types into broader categories later but it is not possible to ascertain if a person has reduced use of cocaine, for example, if cocaine was not directly measured in the drug consumption questionnaire.

The first priority should be to measure frequency of drug use since accurate information on quantities consumed may be very difficult to obtain.

The Psychoactive Drug Use History reported by Wilkinson et al. (1987) (Example B.1) illustrates a systematic way of approaching the measurement of drug use. In this form, there is a progression of eliciting drug use information from asking about use in the past 12 months to asking about specific dosages. Because the measure of dose is anecdotal, its primary value is in assisting in measuring frequency of use accurately. This form takes about 20-30 minutes to complete.

Finally, measuring drug use also involves collecting other types of information about drug use (e.g., route of administration, usual patterns of use, use of prescription medications).

Interpreting Drug Consumption Information to Assess Extent of Reduced Use Following Treatment

The first step in assessing drug use is to measure the actual drugs consumed as accurately as possible. This can be done using a structured interview format. Recent studies using this format have found reporting of drug use to be generally truthful (Hubbard et al., 1986; Martin & Wilkinson, 1989). The next step is to interpret the drug use information obtained. If the client is using only one drug or primarily one drug, it is usually possible through a careful interview to determine whether use has increased, decreased or stayed the same following treatment. Regular use of more than one drug, however, is common among addictions treatment clients. In this case, the task is to use multiple drug use data to assess whether or not drug use in general has changed (as opposed to whether use of any individual drug has changed).

There is no single accepted method for deriving summary measures from drug consumption data. The interpretation of data will depend on the characteristics of the client population, the types of drugs commonly used, and the quality of information obtained. For a discussion of different approaches to measuring drug outcomes, see Wells, Hawkins, and Catalano (1988).

Suggestions for summary measures are provided separately for measures of single drug use and measures combining use of several drugs. One measure that is applicable regardless of number of drugs used is the number of drug-free days in a specified time period (e.g., 90 days) pre- and post-treatment.

Measuring Single Drug Use

A basic measure of drug use that is probably applicable for most programs is to calculate, for each drug type, the number of days the drug was taken prior to treatment in a specific time frame (e.g., 90 days) versus the number of days the drug was taken following treatment with reference to the same time frame. For some drugs and some populations, it might be possible to calculate a finer grained measure of drug use based not only on number of days during the period that the drug was used but also average number of times taken per day during that period. Finally, if drug use is restricted to prescription drugs, and dosage and compliance can be accurately ascertained, it might be possible to calculate change in consumption fairly accurately (e.g., client consumed 40 mg. valium daily before treatment and 2 mg. daily after treatment).

Measuring Multiple Drug Use

In constructing an overall measure of drug use, there are a number of factors that need to be considered, including: the type of drug, the frequency of use of individual drugs, combined use of drugs, and mode of administration. A number of indices of multiple drug consumption using a computational strategy have been proposed (Gunderson, Russell, & Nail, 1973; Lu, 1974; Needle, Su, & Lavee, 1989; Wilkinson et al., 1987), but none of these indices has been adopted as the standard for outcome measurement of drug programs (Martin & Wilkinson, 1989). After evaluating several empirical approaches for measuring multiple drug use, Hubbard et al. (1986) chose to use a predetermined hierarchy of drug use. They devised a scale in which use of narcotics was seen as the most severe drug use, followed by use of non-narcotics, followed by use of alcohol and marijuana (see Table B.2). Although this approach can produce anomalies (e.g., a daily heroin user who reduces to once a week is classified unchanged and a daily cocaine user who changes to using Demerol once a week is rated deteriorated), Hubbard et al. (1986) found these categories to be the most valid in rating outcomes among the populations that they studied. A different approach to interpreting multiple drug use patterns in terms of outcomes was developed by Wilkinson and Lebreton (1986). They set criteria for overall rating of alcohol and drug use as follows:

- **Abstinent.** No use of any drugs during past year

- **Low.** Alcohol: no more than 20 drinks per week and no problems; Cannabis: no more than 4 joints per week and no more than 2 joints in any one day and no problems; Other drugs: no more than one use per month

- **Intermediate.** Alcohol: no more than 10 drinks per day and no more than 42 drinks per week; Cannabis: no more than 10 joints per week; Other drugs: more than one use per month but less than one use per week

- **High**. Alcohol: more than 10 drinks per day or more than 42 drinks per week; Cannabis: 10 joints per week or more; Other drugs: one use per week or more

- **"Outrageous"**. "Very high level of consumption, even within this sample. At rater's discretion." (p. 249)

At present, in drug use measurement there is no clear standard approach to quantifying multiple drug use. The complexity of different drug use patterns, the differences in use among different populations, and the changing availability of particular drugs makes standardization unlikely. At present, the best recommendation seems to be for programs to ensure that drug use is measured carefully and develop strategies for interpreting patterns appropriate for their client populations (guided by approaches used by Hubbard et al., 1986 and Wilkinson et al., 1986).

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TABLE B.1

Examples of Drugs in Each Drug Type*

TRADE NAME	GENERIC NAME	STREET NAME
A. *BARBITURATES/SEDATIVES*		*("Barbs", "Downers", "Goofballs")*
Amytal, Amytal Sodium, Novamobarb	amobarbital	*("Blues", "Blueheaven")*
Tuinal	amobarbital, secobarbital	*("Rainbows", "Reds & Blues")*
Butisol Sodium	butabarbital	
Fiorinal	butalbital, ASA, caffeine (codeine)	
Noctec, Novo-Chlorhydrate	chloral hydrate	
Placidyl	ethchlorvynol	
Nembutal	pentobarbital	*("Yellow Jackets")*
Phenobarbital	phenobarbital	
Seconal	secobarbital	*("Red birds", "Red Devils")*
B. *BENZODIAZEPINES/MINOR TRANQUILIZERS*		*("Tranks", "Downers")*
Xanax	alprazolam	
Lectopam	bromazepam	
Buspar	buspirone	
Librium, Novo-Poxide	chlordiazepoxide	
Rivotril	clonazepam	
Tranxene, Novo-Clopate	clorazepate	
Valium, Vivol, E-Pam	diazepam	*("V's")*
Dalmane, Novo-Flupam, Somnol	flurazepam	
Ativan, Apo-Lorazepam, Novo-Lorazem	lorazepam	
Equanil, Novo-Mepro, Apo-Meprobamate	meprobamate	
Mogadon	nitrazepam	
Serax, Apo-Oxazepam, Novoxapam	oxazepam	
Restoril	temazepam	
Halcion, Apo-Triazo	triazolam	
Imovane	zopliclone	

TRADE NAME	GENERIC NAME	STREET NAME
C. INHALANTS (INDUSTRIAL & COMMERCIAL SOLVENTS)		*("Glue", "Gas", "Sniff")*
	Products containing commonly abused inhalants:	
	aerosols	
	cleaning fluid (spot remover or shoe polish)	
	gasoline	
	general household cleaners	
	household cements	
	lacquer thinner	
	lighter fluid	
	model cements, airplane glue	
	nail polish remover	
	paint and varnish removers	
	plastic (styrene) cements	
	rubber tire patching cement	
D. NARCOTICS		
Over-the-Counter-Narcotics		
222's, Tylenol #1		*("Schoolboy")*
Benylin cough syrup with codeine, etc.	codeine	
Prescription Narcotics		
Tylenol No. 2,3,4	codeine & compounds	
Sublimaze	fentanyl citrate	
Heroin	heroin	*("Dust", "H", "Horse", "Junk", "Smack")*
Hycodon, Novahistex DH, Tussionex	hydrocodone & compounds	*("Juice")*
Dilaudid	hydromorphone	*("Juice", "Dillies")*
Demerol	meperidine (pethidine)	
Methadone	methadone	*("Dollies", "Meth")*
Morphine	morphine	*("M", "Morph", "Miss Emma")*
Percodan, Percocet, Supeudal,	oxycodone & compounds	*("Percs")*
Talwin	pentazocine	*("T's, "Big T", "Tea")*
Novo-Propoxyn, 642	propoxyphene hydrochloride	
Darvon-N	propoxyphene napsylate	*("Yellow footballs")*

TRADE NAME	GENERIC NAME	STREET NAME
E. *HALLUCINOGENS*		
	3,4-methylene dioxymethamphetamine	*("Ecstasy")*
	atropine, scopolamine, hyoscine	
	cannabis	
	DMT (dimethyltryptamine)	*("Businessman's lunch")*
	hashish	*("Hash")*
	hash oil	*("Honey oil")*
	LSD (lysergic acid diethylamide)	*("Acid", "California Sunshine", "Blotters")*
	marijuana	*("Grass", "Pot", "Weed")*
	MDA (methylenedioxyamphetamine)	*("Love Drug")*
	mescaline	
	PCP (phencyclidine)	*("Angel Dust", "Crystal", "Peace Pill")*
	peyote	
	PMA (paramethoxyamphetamine)	*("Death drug")*
	psilocybin	*("Magic Mushroom", "Mushroom", "Shroom")*
F. *ANTI-PSYCHOTIC/MAJOR TRANQUILIZERS*		
Largactil	chlorpromazine	
Fluanxol	flupenthixal	
Haldol	haloperidol	
Nozinan	methotrimeprazine	
Trilafon	perphenazine	
Mellaril	thioridazine	
Stelazine	trifluoperazine	
G. *ANTIDEPRESSANTS*		
Elavil, Novo-Triptyn	amitriptyline	
Anafranil	clomipramine	
Sinequan	doxepin	
Prozac	fluoxetine	
Tofranil, Novo-Pramine	imipramine	
Nardil	phenelzine	
Parnate	tranylcypromine	

TRADE NAME	GENERIC NAME	STREET NAME
H. AMPHETAMINES AND RELATED COMPOUNDS		*("Uppers", "Eyeopeners", "Peppills")*
Benzedrine	amphetamine	*("Bennies", "Black Beauties")*
Dexedrine	dextroamphetamine	*("Dexies")*
Tenuate, Nobesine	diethylpropion	
Ponderal	fenfluramine	
Sanorex	mazindol	
Methamphetamine	methamphetamine	*("Speed", "Crystal", "Ice", "Crank")*
Ritalin	methylphenidate	*("Rits")*
Ionamin	phentermine	
I. OTHER STIMULANTS		
Stimutabs, Wakeups, Alert	caffeine	
Ephedrine	ephedrine	
Atrovent	ipratropium bromide	
Nicorette	nicotine	
Ornade, Contac C	phenylpropanolamine & compounds (including antihistamines)	
Ventolin	salbutamol	
J. COCAINE, CRACK/FREEBASE		
	cocaine	*("C", "Coke", "Flake", "Snow")*
K. VOLATILE NITRITES		
	amyl nitrite	*("Poppers")*
	isobutyl nitrite	*("Rochefort", "Rush", "LockerRoom")*
L. ANTIHISTAMINES		
Dimetane, Dimetapp	brompheniramine	
Chlortripolon	chlorpheniramine	
Gravol	dimenhydrinate	
Benadryl, Nytol, Sominex	diphenhydramine	
Pyribenzamine	tripelennamine	

M. *ANTI-PARKINSONIAN AGENTS*

TRADE NAME	GENERIC NAME	STREET NAME
Cogentin	benztropine	
Artane	trihexyphenidyl	

COMBINATION PRODUCTS

A. *PRESCRIPTION*

TRADE NAME	GENERIC NAME	STREET NAME
217	ASA & caffeine citrate	
Tylenol #2-4	acetaminophen, caffeine & codeine	
Elavil Plus	amitriptyline & perphenazine	
Tuinal	amobarbital & secobarbital	
Fiorinal	butalbital, ASA, & caffeine	
Fiornal C	butalbital, codeine, ASA & caffeine	
Exedrin, 217, 222, etc.	caffeine, ASA & sometimes codeine	
Librax	chlordiazepoxide & clidinium bromide	
Cough, cold & allergy preparations	ephedrine, pseudoephedrine, phenylpropanolamine & antihistamines	
282 Mep	meprobamate & codeine phosphate	
692	propoxyphene hydrochloride, ASA & caffeine	
Darvon-N with ASA	propoxyphene napsylate & ASA	
Darvon-N compound	propoxyphene napsylate, ASA & caffeine	

B. *ILLICIT*

TRADE NAME	GENERIC NAME	STREET NAME
	amphetamines & barbiturates	*("Goofballs")*
	cannabis & heroin	*("A-bomb" or "Atom bomb")*
	cannabis & opium	*("OJ" or "Opium Joint")*
	cannabis & PCP	*("Supergrass" or "Killer Weed")*
	cocaine & heroin	*("Dynamite")*
	heroin & amphetamines	*("Bombitas")*
	glutethimide and codeine	*("Loads", "Hits", "Doors and Fours")*
	glutethimide and Tuissionex, a hydrocodone-based cough syrup	*("Madam X")*
	mescaline & a number of different alkaloids	*("Peyote Buttons")*
	mescaline, LSD and cannabis	*("TMA")*
	methamphetamine or cocaine & heroin	*("Speedballs")*
	morphine or heroin, & cocaine	*("Whizbang")*

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* This list was generated with the help of Anne Kalvik, pharmacist at ARF. A comprehensive psychoactive drug list is available from the Pharmacy Department of ARF, Toronto.

TABLE B.2

Drug Use Patterns Ordered by Level of Severity (TOPS)

Drug Use Patterns	Defining Characteristics of Groups[a]
Heroin/other narcotics	1. Weekly or greater use of heroin or illegal methadone and other narcotics
Heroin	2. Weekly or greater use of heroin or illegal methadone and no use of other narcotics as often as weekly
Other narcotics[b]	3. Weekly or greater use of other narcotics but less than weekly use of heroin/ methadone
Multiple nonnarcotics[c]	4. Weekly or greater use of at least two nonnarcotics in addition to marijuana and alcohol use
Single nonnarcotic[c]	5. Weekly or greater use of one nonnarcotic in addition to marijuana and alcohol use
Alcohol/marijuana	6. Weekly or greater use of alcohol and/or marijuana. No other drug used as often as weekly
Minimal (residual)	7. All remaining clients

Note: Patterns were defined hierarchically in their tabled order. Thus, for example, a client appears in pattern 5 in the table only if he did not qualify for any of the preceding patterns (1 to 4).

[a] Defining characteristics do not describe all drugs used by these clients. Rather, they indicate the key drugs and use levels for classification.

[b] Other narcotics are defined as opioids other than heroin and methadone. Included in this category are codeine, propoxyphene (Darvon), meperidine, hydromorphone, morphine, opium, paregoric, oxycodone (Percodan), and pentazocine.

[c] The nonnarcotics included in constructing these patterns were barbiturates/sedatives/hypnotics, cocaine, amphetamines, and minor tranquilizers.

Reproduced from Hubbard et al., 1986 (p.27).

Example B.1. Psychoactive Drug Use History

Drug Class	Months of Use In Past Year	Typical Frequency in Months of Use	Typical Number of Times Used Per Day	Typical Dosage and Comments
We are now going to collect information about your use of drugs, particularly in the last year. First we will try to establish what classes of drugs you have used in the past year, and then deal with each relevant drug class for details. The drug class we will deal with now is ________________ (Give the drug class name). Included in this class of drugs are ________________ (Explain to client what drugs are included in this class.) Have you used any of these drugs at all in the past 12 months?	In how many of the last 12 months did you use at least one of the drugs in this class? I want to find out how many months involved any use of ________________ (drug class). Enter the relevant number (*x*) between 1-12 when the client has responded. Confirm by saying: "So that means there were 12-*x*) months when you did not use any kind of ________________".	On the average, in a month when you used ________________ (drug class), how many days of the month would you take ________________? Enter the average no. of days/month. (If use was less than daily, enquire about pattern of use and enter comments in the relevant section at your discretion.)	In an average day, how many times would you use some kind of ________________ if you used it at all? How many would you use on each of these times? For all drugs except alcohol, enter the no. of times reported. Enter the *units* of use in the *Typical Dosage* column. For alcohol, calculate the number of *standard drinks*, and enter this figure as the number per day. 1 Standard Drink Equals 12 oz Beer 4 oz Wine 3 oz Port Wine 1½ oz Liquor	Enter the Units in which the use of particular drugs is specified, e.g., joints, hits, ml., caps., tabs., etc. Also note any complex patterns of use, e.g., usually uses amphetamines but uses Yellow Jackets (Diet Pills) when amphetamines unavailable.

Reproduced from Wilkinson, Leigh, Cordingley, Martin & Lei, 1987.

Example B.2. Pre-treatment Drug History (G. Martin, S. Pearlman, & A. Ekdahl, 1991)

PRE-TREATMENT DRUG USE HISTORY						DAYS OF USE AND TYPICAL DAILY FREQUENCY								SPECIFIC DRUGS							
DRUG TYPE[1]	Ever Used 1=Yes 2=No	Age of First Use	Total Yrs Used	Last[2] Use	Use Currently a problem 1=Yes 2=No	Past 30 days		Past 31-90 days		Past 91-180 days		Past 181-360 days		Primary Drug	2nd Other Drug	3rd Other Drug	Inject in Past 360 Days 1=Yes 2=No	Routes of[3] Administration		Rx[4] by MD 1=Yes 2=No	Comments on drug use: e.g., usual dosage,[5] patterns of use, modes of administration, reliability, legitimacy of use of over the counter and prescription medications, etc.
						Days	Freq	Days	Freq	Days	Freq	Days	Freq					Most Freq	2nd Freq		
CANNABIS 1. marijuana 2. hashish 3. hash oil																					
STIMULANTS -COCAINE 1. cocaine 2. crack/freebase																					
STIMULANTS -METHAMPH 1. speed 2. ice																					
STIMULANTS -OTHERS 1. street stimulants (see examples) 2. Ritalin																					
DEPRESSANTS -ANTI-ANXIETY 1. Librium 2. Valium																					
DEPRESSANTS -SED. HYPN. 1. Amytal 2. Florinal																					

Note. - IF "EVER USED" IS 2(NO) FOR ANY GIVEN LINE, THE REMAINDER OF THE LINE SHOULD BE LEFT BLANK

- See codes following Drug History

Example B.2 (continued)

PRE-TREATMENT DRUG USE HISTORY						DAYS OF USE AND TYPICAL DAILY FREQUENCY								SPECIFIC DRUGS							
DRUG TYPE[1]	Ever Used 1=Yes 2=No	Age of First Use	Total Yrs Used	Last[2] Use	Use Currently a problem 1=Yes 2=No	Past 30 days		Past 31-90 days		Past 91-180 days		Past 181-360 days		Primary Drug	2nd Other Drug	3rd Other Drug	Inject in Past 360 Days 1=Yes 2=No	Routes of[3] Administration		Rx[4] by MD 1=Yes 2=No	Comments on drug use: e.g., usual dosage,[5] patterns of use, modes of administration, reliability, legitimacy of use of over the counter and prescription medications, etc.
						Days	Freq	Days	Freq	Days	Freq	Days	Freq					Most Freq	2nd Freq		
7 NARCOTICS -OVER COUNT 1. codeine, e.g., 222s, benylin																					
8 NARCOTICS 1. heroin 2. hydrocodone																					
9 INHALANTS 1. glue 2. gasoline																					
10 HALLUCINOGENS 1. LSD 2. psilocybin																					
11 TOBACCO 1. Filtered Cig. non-menthol 2. Filtered Cig. menthol																					
12 OTHER 1. anti-alc drugs 2. major tranq. 3. antiemetics 4. antidepressants 5. antihistamines																					

Note. - IF "EVER USED" IS 2(NO) FOR ANY GIVEN LINE, THE REMAINDER OF THE LINE SHOULD BE LEFT BLANK

- See codes following Drug History

Codes for Pre-treatment Drug Use History

	Starting Date	Ending Date
30 days		
90 days		
91-180 days		
181-360 days		
	Da Mo Yr	Da Mo Yr

1. Drug type - see instructions for additional drug codes

2. Time elapsed since last use
   1) 1-24 hours
   2) 25-48 hours
   3) 3-7 days
   4) 8 days-1 month
   5) 1-3 months
   6) more than 3 months

3. Typical Route of Administration in the past 90 days:
   1) Oral (swallowing, chewing, eating)
   2) Nasal (snorting)
   3) Inhalation (smoking, sniffing)
   4) Injection (IV)
   5) Injection (not IV)
   6) Other

4. Answer yes only if used as prescribed. Document misuse.

5. Usual dosage - the amount used at each administration of the drug, e.g., 3 tabs, 30 (mg). If the usage is variable please describe.

USAGE SUMMARY	Past 30 Days	Past 31-90 Days	Past 91-180 Days	Past 181-360 Days
Days on which no alcohol or drugs were used				
Days on which both alcohol and drugs were used				
Days on which only alcohol was used				
Days on which only drugs (not alcohol) were used				

FIGURES WITHIN EACH BOX SHOULD ADD TO 30/60/180 (RESPECTIVELY, LEFT TO RIGHT)

Example B.3. Pre-treatment Drug Use History and Follow-Up Drug Use History (ARF Cross-Study Shared Data Base, 1985)

PRE-TREATMENT DRUG USE HISTORY

DRUG TYPE	Ever Used? 1=no 2=yes	Total Years Used 0-90	Most Typical Route of Administration 1=oral 4=injected(IV) 2=sniffed 5=inhaled 3=injected 6=other	Year Last Used	Year of Heaviest Use	Days Used in Year of Heaviest Use 0-369	Number of Days Used in Preceding...			Typical Daily Frequency of Use in Preceding...		
							30 Days	90 Days	360 Days	30 Days	90 Days	360 Days
CANNABIS: marijuana, hashish, hash oil				19	19							
STIMULANTS: cocaine				19	19							
STIMULANTS: methamphetamine (e.g., speed)				19	19							
STIMULANTS: others (e.g., ritalin, diet pills or amphetamines)				19	19							
DEPRESSANTS: anti-anxiety drugs (e.g., valium, librium)				19	19							
DEPRESSANTS: others, esp. sedative hypnotics (e.g., Amytal, Dalmane)				19	19							
NARCOTICS: heroin				19	19							
NARCOTICS: methadone				19	19							
NARCOTICS: over-the-counter (e.g., 222s)				19	19							
NARCOTICS: other (e.g., opium, morphine, Demerol, Dilaudid)				19	19							
INHALANTS: glue, solvents, aerosols				19	19							
INHALANTS: volatile nitrates				19	19							
HALLUCINOGENS: LSD, PCP, STP, MDA, angel dust, mescaline, psilocybin, etc.				19	19							
ANTI-ALCOHOL DRUGS: antabuse, temposil				19	19							
OTHER:				19	19							

NOTE: IF "EVER USED" IS 1 (NO) FOR ANY GIVEN LINE, THE REMAINDER OF THE LINE SHOULD BE LEFT BLANK

USAGE SUMMARY	Past 30 Days	Past 90 Days	Past 360 Days
Days on which no alcohol or drugs were used			
Days on which both alcohol and drugs were used			
Days on which only alcohol was used			
Days on which only drugs (not alcohol) were used			
Days on which any drug was injected			

FIGURES WITHIN EACH
BOX SHOULD ADD TO
30/90/360

Example B.3 (cont.)

FOLLOW-UP DRUG USE HISTORY

DRUG TYPE	Used During Past 6 Months 1=no 2=yes	Most Typical Route of Administration 1=oral 2=sniffed 3=injected 4=injected(IV) 5=inhaled 6=other	Number of Days Used in Preceding...			Typical Daily Frequency of Use in Preceding...		
			30 Days	90 Days	180 Days	30 Days	90 Days	180 Days
CANNABIS: marijuana, hashish, hash oil								
STIMULANTS: cocaine								
STIMULANTS: methamphetamine (e.g., speed)								
STIMULANTS: others (e.g., ritalin, diet pills or amphetamines								
DEPRESSANTS: anti-anxiety drugs (e.g., valium, librium)								
DEPRESSANTS: others, esp. sedative hypnotics (e.g., Amytal, Dalmane)								
NARCOTICS: heroine								
NARCOTICS: methadone								
NARCOTICS: over-the-counter (e.g., 222s)								
NARCOTICS: other (e.g., opium, morphine, Demerol, Dilaudid)								
INHALANTS: glue, solvents, aerosols								
INHALANTS: volatile nitrates								
HALLUCINOGENS: LSD, PCP, STP, MDA, angel dust, mescaline, psilocybin, etc.								
ANTI-ALCOHOL DRUGS: antabuse, temposil								
OTHER: Specify:________________								

NOTE: IF "EVER USED" IS 1 (NO) FOR ANY GIVEN LINE, THE REMAINDER OF THE LINE SHOULD BE LEFT BLANK

USAGE SUMMARY	Past 30 Days	Past 90 Days	Past 360 Days
Days on which no alcohol or drugs were used	☐☐	☐☐	☐☐☐
Days on which both alcohol and drugs were used	☐☐	☐☐	☐☐☐
Days on which only alcohol was used	☐☐	☐☐	☐☐☐
Days on which only drugs (not alcohol) were used	☐☐	☐☐	☐☐☐
Days on which any drug was injected	☐☐	☐☐	☐☐☐

FIGURES WITHIN EACH BOX SHOULD ADD TO 30/90/180 (RESPECTIVELY, LEFT TO RIGHT)

Example B.4. Drug Assessment Format Used in U.S. Treatment Outcome Prospective Study (TOPS) (Hubbard et al., 1986; 1989)

Clients were told, "In this section we would like to ask about your nonmedical use of drugs - without a doctor's prescription or not according to directions." Clients were then asked, "Have you ever used [drug type]?" for each of the types of drugs listed below.

1. Marijuana, hashish, THC
2. Inhalants - such as glue, gasoline, paint thinner
3. Hallucinogens or psychedelics - such as LSD, DMT, mescaline, PCP
4. Cocaine
5. Heroin
6. Street or illegal methadone
7. Other narcotics or opiates - such as opium, morphine, codeine, Demerol, Dilaudid, Talwin
8. Minor tranquilizers - such as Librium, Valium, Miltown, Equanil
9. Major tranquilizers - such as Thorazine, Stelazine, Lithium, Mellaril
10. Barbiturates - such as Nembutal, Seconal, Tuinal
11. Sedatives and hypnotics - such as Doriden, Noludar, Quaalude, Sopor
12. Amphetamines, speed or diet pills - such as Benzedrine, Dexedrine, Preludin
13. Any other drugs (specify)____________________________________

The drug type and examples of each type were read to the client. Color pictures of tranquilizers, barbiturates, sedatives and amphetamines were shown to the client. If a client reported use of hallucinogens, minor tranquilizers or amphetamines, he or she was asked about use of a specific drug within the general type - PCP, Librium/Valium and Preludin, respectively.

Frequency of use of alcohol and frequency of use of drugs for nonmedical purposes during the 3 months and 12 months before treatment were obtained for all drug types. Clients were asked to report their frequency of use on the following 9-point scale:

0	None
1	Less than 1 time a month
2	1 to 3 times a month
3	1 time a week
4	2 to 3 times a week
5	4 to 6 times a week
6	Daily/1 time a day
7	2 to 3 times each day
8	4 or more times each day

Reproduced from Hubbard, Bray, Craddock, Cavanaugh, Schenger, & Rachal, 1986 (p.14-15).

Example B.5. Alcohol and Drug Use Patterns and Problems, Ontario Drug Abuse Treatment Outcome Study (Ogborne, 1991)

		Complete this section only for drugs used.							
Classes of Substance (Specify drug - see list)	Ever Used	Age at First Use	Maximum Frequency of Use		Current Mode of Use	Current Use a Problem	How Long Use a Problem	Usual Number of Times Drug Taken in One Day	Dose/Notes
	1=yes 2=no	88=don't know	1=once a month 2=twice/month 3=3-4 times/month 4=2-4 times/week 5=5+ times/week		1=oral 2=inject 3=inhaled 4=combination of above	1=major 2=minor 3=no	No. of years a problem 1=1 or less		
			last 6 months	prior to last 6 months					
2. Barbiturates and other sleeping pills (specify)__________									
3. Benzodiazepine (specify)__________									
4. Cannabis (specify)__________									
5. Amphetamines & other stimulants (specify)__________									
6. Narcotic analgesics & cough syrups (specify)__________									
7. Cocaine/Crack (specify)__________									
8. Glue, gasoline & other inhalants (specify)__________									
9. Hallucinogens (specify)__________									
10. Alcohol									
Nicotine (specify brand)__________									
Other prescription drugs not listed above (specify)__________									
Other, non-prescription drugs not listed above (specify)__________									

Example B.6. Prescription Drug Use, Community Older Persons Alcohol Project: Assessment Form (Saunders, Graham, Flower, & Shea, 1985)

In completing this form, assessments were usually done at the client's home, where the client was asked to show the case worker all the drugs he or she was taking. Data about prescribed dosage were usually taken directly from the drug container and data on compliance obtained from the client's self-report.

List all prescription drugs that the client is currently using, including prescribed dosage, the approximate date of when the client began using the drug, whether the prescription is an ongoing one or short-term medication, whether the client follows prescription, and whether client experiences unpleasant side effects or other problems.

	DRUG NAME	DOSAGE	APPROXIMATE AGE WHEN USAGE BEGAN	1-ONGOING 2-SHORT TERM	1-CLIENT IS FOLLOWING PRESCRIPTION 2-CLIENT TAKES LESS THAN PRESCRIBED 3-CLIENT TAKES MORE THAN PRESCRIBED	0-NO UNPLEASANT SIDE EFFECTS 1-MINOR UNPLEASANT SIDE EFFECTS 2-MAJOR UNPLEASANT SIDE EFFECTS	DESCRIBE ANY OTHER PROBLEMS WITH DRUGS
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

C. Adverse Consequences of Alcohol Use

Typically, diagnosis of alcohol abuse is defined by two parameters: amount of alcohol consumed and adverse consequences experienced as a result of consumption. For example, commonly used measures such as the MAST (Michigan Alcoholism Screening Test; Selzer, 1971) are heavily weighted with questions on consequences. Examples of adverse consequences include: long-term chronic health effects such as liver cirrhosis, as well as short-term effects such as blackouts and intoxication-related injuries.

Few measures of consequences have been developed for use in pre- and post-testing situations, since many of the standardized questionnaires on consequences are designed for measuring lifetime consequences not recent consequences. Questions regarding lifetime consequences usually are phrased "Have you ever..." and might include such questions as: "Have you ever been in a fight while drinking?", "Have you ever experienced the DTs?". Because questions are asked about lifetime occurrence, scores on these measures could not be expected to improve following treatment, even if the person became abstinent.

At present, no standard framework of adverse consequences has been adopted for use in treatment outcome studies. Although adverse consequences have been measured in numerous research studies including both surveys and treatment evaluations, these studies have shown little consistency regarding the selection of consequences that are measured and the manner in which questions are asked about consequences.

Alcohol-related adverse consequences may be experienced in a number of life areas such as physical health, social relationships, financial or legal difficulties, and so on. Measures that have been used in the past vary according to which areas were measured, the characteristics of the population for whom the measure was developed (e.g., males versus females, younger versus older persons) (Turnbull & Gomberg, 1991), and the purposes of measurement (e.g., treatment evaluation versus estimating the prevalence of problems in the general population).

A subset of alcohol-related adverse consequences (consequences related to dependence symptoms) has been the focus of considerable measurement research, however, and several standardized measures of alcohol dependence have been developed. These measures are discussed separately later in this section.

Aside from specific dependence measures, measures of adverse consequences of alcohol use have varied according to the methods of asking questions about consequences, the types of consequences measured, and the interpretation of reported consequences. One method is to count the actual consequences experienced. Polich, Armor, and Braiker (1981), however, have questioned whether it makes sense to construct a numerical scale of consequences in evaluation of treatment outcomes. In their research, they measured fairly severe consequences and suggested that the occurrence of even one of the consequences following treatment could be interpreted as a continuing alcohol problem. In addition, the validity of using a total score may be problematic unless the domain of possible consequences has been well-identified and applies equally well to all respondents. For example, the relevance of existing consequences measures has been questioned for female substance abusers (Fillmore, 1984; Klee, Schmidt, & Ames, 1991; Wilsnack, Wilsnack, & Klassen, 1984/85) and for the elderly (Graham, 1986). If total scores are to be used in a meaningful way, the measure must include consequences of greatest relevance to the population being studied.

In sum, it is not possible at this time to make clear recommendations regarding the measurement of consequences other than those included in standardized dependence scales. However, Examples 3.8 and 3.9 are provided to show consequences measures that have been used successfully in treatment outcome studies at the Clinical Research and Treatment Institute (ARF). These examples provide some guidance, but it is recommended that, given the lack of standardization in the area, programs assessing adverse consequences should interpret results cautiously.

The measures of alcohol dependence provided at the end of this section are recommended as these measures have been validated and provide interpretable scores.

Defining and Measuring Alcohol Dependence

Questions relating to physical or psychological dependence on alcohol have typically been included in consequences scales (e.g., withdrawal symptoms, craving and need, blackouts). In 1976, Edwards and Gross published an article describing the elements of what they termed the "alcohol dependence syndrome". The following were identified as part of this syndrome: narrowing of the drinking repertoire (i.e., a lifestyle where habitual drinking is the main focus), salience of drink-seeking behavior, increased tolerance to alcohol, repeated withdrawal symptoms, relief or avoidance of withdrawal symptoms by further drinking, subjective awareness of a compulsion to drink, and reinstatement after abstinence. Following this, a number of *conceptually-based* scales of alcohol dependence were developed. Two scales developed from this framework were the Severity of Alcohol Dependence Questionnaire (SADQ) (Stockwell, Hodgson, Edwards, Taylor, & Rankin, 1979) and the Short Alcohol Dependence Data Questionnaire (SADD) (Raistrick, Dunbar, & Davidson, 1983). In addition, Horn and Skinner, in collaboration with others (Horn, Skinner, Wanberg, & Foster, 1984), developed the Alcohol Dependence Scale on the basis of the identification of a strong consistent factor of the Alcohol Use Inventory (Horn & Wanberg, 1969; Skinner & Horn, 1984) that reflected the characteristics of the alcohol dependence syndrome.

There is a great deal of research in progress on the topic of alcohol dependence, and there is still some controversy over the specific consequences that are essential elements of dependence and whether all aspects of the syndrome form a single construct (Caetano, 1990). Chick (1980) and Caetano have also identified critical measurement issues such as (1) finding the right questions *to operationalize* the different aspects of dependence (e.g., how do you measure "subjective awareness of compulsion to drink?"), (2) specifying the time frame and allowing for fluctuating severity, and (3) interpreting total scores. Nevertheless, in terms of the development of standard measures, work on the alcohol dependence syndrome reflects one of the most highly developed areas in the addictions field. Therefore, although our understanding of alcohol dependence and the meaning of other types of adverse consequences is still evolving, the standardized measures of dependence that follow are among the most useful and meaningful tools currently available for measuring adverse consequences.

The two measures reviewed are the Short Alcohol Dependence Data (SADD) and the Alcohol Dependence Scale (ADS). These two were chosen because they measure the alcohol dependence syndrome in a way that is broadly applicable to most addictions treatment populations.

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Example C.1 Drinking Consequences Checklist Interview

(For clients who have consumed any alcoholic beverages since the last interview with the case worker)

Since the last time we spoke together on __(date of last interview)__ .....

		Yes	No
1.	Have you drank in the morning just after waking to prevent withdrawal from the previous night of drinking? *(Note to interviewer: adjust for shift work)*	☐	☐
2.	Have you had "shakes" (hand tremble, shake inside) when sobering up as a result of drinking?	☐	☐
3.	Have you had a seizure (convulsion, fit) following a period of drinking?	☐	☐
4.	Have you heard things that were not there (hallucinated) as a result of your drinking?	☐	☐
5.	Have you seen or felt things that were not there as a result of your drinking?	☐	☐
6.	Have you had delirium tremens or DTs (had tremors, hallucinations and been confused or delirious at the same time) as a result of your drinking?	☐	☐
7.	Have you had blackouts (total "loss of memory" without passing out) while drinking?	☐	☐
8.	Have you suffered any physical problems that were caused or made worse by your drinking (for example: liver disease, stomach cramps, ulcers, fatty liver)?	☐	☐

If yes, specify what physical problems have been experienced: ______________________

9.	Have you tried to cut down on your drinking and failed?	☐	☐
10.	Have you been able to have only one or two drinks and then stop drinking?	☐	☐
11.	Has your drinking caused you any work problems?	☐	☐
12.	Have you been arrested for drunk driving or public drunkenness?	☐	☐
13.	Has your drinking caused you any legal problems other than drunk driving or public drunk arrests?	☐	☐

If yes, specify what legal problems have been experienced: ______________________

14. Has your drinking caused you any serious social problems? ☐ ☐

15. Have you been medically advised to stop drinking or to cut down on your drinking? ☐ ☐

Why: ______________________________

16. Have you drank continuously for 12 hours or more? ☐ ☐

17. Have you been hospitalized for drinking problems? ☐ ☐

18. Have you received any kind of treatment, counselling or help for your drinking problem? ☐ ☐

Describe: ____

19. Have you missed meals because of heavy prolonged drinking? ☐ ☐

Please list any other problems that have been related to your drinking that are not included among the above questions:

20. ____

21. ____

22. ____

23. ____

24. ____

Note. This consequences checklist adapted from Polich, Armor and Braiker (1981).

Example C.2. Adverse Consequences of Substance Use
(ARF Cross-Study Shared Database Follow-Up Form)

ADVERSE CONSEQUENCES OF SUBSTANCE USE	Alcohol	CNS Stimulants	Tran-quilizers	Nar-cotics	Sedative Hypnotics	Solvents	Cannabis	Tobacco	Other Specify:______	Combination Specify:______
Substance used in past 6 months 1 = yes 2 = no										
NOTE: LEAVE SUBSEQUENT QUESTIONS BLANK FOR SUBSTANCES NOT USED Problem Areas (For each, code the highest number that applies)										
Physical Health Impairment (Including overdose but not neurological problems unless neurological damage has been diagnosed) 0 = none 1 = doctor's health warning 2 = outpatient medical treatment for physical problem (illness or accident) related to substance use 3 = inpatient hospital treatment for physical problem (illness or accident) related to substance use										
Cognitive Impairment (acute or chronic) (Including flashbacks, substance-related psychoses, personality changes when using) 0 = none 1 = once 2 = more than once										
Affective Impairment (acute or chronic) 0 = none 1 = minor (impairment had no important effect on daily functioning) 2 = major (impairment had adverse consequences on daily functioning)										

ADVERSE CONSEQUENCES OF SUBSTANCE USE	Alcohol	CNS Stimulants	Tran-quilizers	Nar-cotics	Sedative Hypnotics	Solvents	Cannabis	Tobacco	Other Specify:______	Combination Specify:______
Tolerance 1 = no 2 = yes (increased dose necessary to get desired effect)										
Felt Need 0 = none 1 = mild (mild desire but no feeling of being dependent) 2 = strong (strong urge to use; feeling of being dependent)										
Interpersonal Problems 0 = none 1 = minor (arguments or strained relationships only) 2 = major (relationships lost or about to be broken off because of substance use)										
Aggression 0 = none 1 = verbally abusive when using 2 = physically violent when using										
Vocational Problems 0 = none 1 = performance affected (lost time or reduced capacity) 2 = boss complaining 3 = loss of job threatened, or actual loss of job										
Legal Problems (Substance-Related Charges) 0 = none 1 = charged only (case pending or dropped) 2 = convicted; non-custodial sentence 3 = convicted; custodial sentence										

ADVERSE CONSEQUENCES OF SUBSTANCE USE	Alcohol	CNS Stimulants	Tran-quilizers	Nar-cotics	Sedative Hypnotics	Solvents	Cannabis	Tobacco	Other Specify:______	Combination Specify:______
Financial Problems 0 = none 1 = minor (spending too much) 2 = major (use of substance associated with significant loss of income, support of habit, etc.)										
DURING THE PAST SIX MONTHS, have you experienced any of the following effects as a result of your use of alcohol or other drugs? **(Note: Leave blank for substances which the client did not use).** 1 = yes 2 = no										
Miss work (absenteeism)										
Neglect work on the job										
Loss of job										
Blackouts (loss of memory)										
WITHDRAWAL SYMPTOMS **(Note: For each withdrawal symptom below, code whether or not this symptom ever occurred within a few hours or days after stopping the use of alcohol or other drugs over the past six months)** 1 = Yes 2 = No										
Unusual difficulty sleeping										
Flu-like symptoms (runny nose, body aches)										
Sick to stomach										
Rapid heart beat (palpitations)										
Confusion or fuzzy thinking										
Weird or frightening sensations										

ADVERSE CONSEQUENCES OF SUBSTANCE USE	Alcohol	CNS Stimulants	Tran-quilizers	Nar-cotics	Sedative Hypnotics	Solvents	Cannabis	Tobacco	Other Specify:______	Combination Specify:______
Shakes, tremors, sweating										
Visual hallucinations (see things that were not there)										
Auditory hallucinations (heard things that were not there)										
Tactile hallucinations (felt things on your skin that were not there)										
Convulsions, seizures										
Delirium Tremors, DTs (includes tremors, disorientation and hallucinations)										
Actual number of discrete withdrawal episodes for each substance, past 6 months										

Measure: Short Alcohol Dependence Data (SADD)

The Short Alcohol Dependence Data measure was designed to assess dependence in the general adult substance-abusing population. Psychometric studies, though not extensive, suggest that the scale has stability and validity as a measure of dependence. The scale has been shown to have good test-retest reliability, although no measure of internal consistency has been reported. While evidence for the validity of the scale is sparse, a major strength is its reflection of all dimensions of the alcohol dependence syndrome. It would seem likely that the scale would be capable of measuring change in dependence based on its sensitivity across the full range of dependence. The SADD has been used mostly with clients of addictions treatment programs, both males and females. Use with specific cultural groups or subpopulations (other than male young offenders) has not been investigated.

Short-Form Alcohol Dependence Data Questionnaire (SADD)

INSTRUCTIONS: The following questions cover a wide range of topics to do with drinking. Please read each question carefully but do not think too much about its exact meaning. Think about your MOST RECENT drinking habits and answer each question by placing a tick (√) under the MOST APPROPRIATE heading. If you have any difficulties ASK FOR HELP.

		Never	Sometimes	Often	Nearly Always
1.	**Do you find difficulty in getting the thought of drinking out of your mind?**	☐ 0	☐ 1	☐ 2	☐ 3
2.	**Is getting drunk more important than your next meal?**	☐ 0	☐ 1	☐ 2	☐ 3
3.	**Do you plan your day around when and where you can drink?**	☐ 0	☐ 1	☐ 2	☐ 3
4.	**Do you drink in the morning, afternoon and evening?**	☐ 0	☐ 1	☐ 2	☐ 3
5.	**Do you drink for the effect of alcohol without caring what the drink is?**	☐ 0	☐ 1	☐ 2	☐ 3
6.	**Do you drink as much as you want irrespective of what you are doing the next day?**	☐ 0	☐ 1	☐ 2	☐ 3
7.	**Given that many problems might be caused by alcohol do you still drink too much?**	☐ 0	☐ 1	☐ 2	☐ 3
8.	**Do you know that you won't be able to stop drinking once you start?**	☐ 0	☐ 1	☐ 2	☐ 3
9.	**Do you try to control your drinking by giving it up completely for days or weeks at a time?***	☐ 0	☐ 1	☐ 2	☐ 3
10.	**The morning after a heavy drinking session do you need your first drink to get yourself going?**	☐ 0	☐ 1	☐ 2	☐ 3

11.	**The morning after a heavy drinking session do you wake up with a definite shakiness of your hands?**	**☐ 0**	**☐ 1**	**☐ 2**	**☐ 3**
12.	**After a heavy drinking session do you wake up and retch or vomit?**	**☐ 0**	**☐ 1**	**☐ 2**	**☐ 3**
13.	**The morning after a heavy drinking session do you go out of your way to avoid people?**	**☐ 0**	**☐ 1**	**☐ 2**	**☐ 3**
14.	**After a heavy drinking session do you see frightening things that later you realize were imaginary?**	**☐ 0**	**☐ 1**	**☐ 2**	**☐ 3**
15.	**Do you go drinking and the next day find you have forgotten what happened the night before?**	**☐ 0**	**☐ 1**	**☐ 2**	**☐ 3**

Scoring: The 15 items summed for a total score than can range from 0 to 45. Scale totals are interpreted as follows: 1-9 low dependence, 10-19 medium dependence, and 20 or greater high dependence.

Note. Reprinted with permission from D. Raistrick (1991).

* In a 1989 article, the authors recommend that this item be excluded from the scale.

Detailed Review of the Short Alcohol Dependence Data (SADD)

Original Publication:

Raistrick, D., Dunbar, G., & Davidson, R. (1983). Development of a questionnaire to measure alcohol dependence. *British Journal of Addiction, 78*, 89-95.

Principal Author:

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Description: The Short Alcohol Dependence Data questionnaire was derived from a longer questionnaire (the Alcohol Dependence Data questionnaire - ADD) developed in the early 1980s. It was designed to have a broader focus than the SADD, a dependence questionnaire which focused primarily on withdrawal symptoms. The SADD was also intended to be easier and faster to use than previous measures. As reported in the original publication (Raistrick, Dunbar, & Davidson, 1983), the SADD was designed to be: "(i) suitable for patients seeking help with a drinking problem; (ii) a measure of present state dependence; (iii) sensitive across the full range of dependence; (iv) sensitive to change over time; (v) and relatively free of socio-cultural influence" (p.90).

The original questionnaire was developed using a trial-and-error process to identify the best set of items that would measure the concept of dependence outlined by Edwards and Gross (1976). This 34-item measure was reduced to a short version of 15 items. The short version correlated very highly ($r = .92$) with the longer version on the original sample of 41 regular drinkers, 30 psychiatric patients, and 174 referrals to an addictions treatment unit (Raistrick et al., 1983).

Target Populations: The scale is aimed at the general adult substance-abusing population focusing primarily on those who are mildly to moderately dependent. The SADD is commonly used with male and female clients of addictions treatment programs, although some studies have used the SADD with non-treatment samples.

Administration: As a self-report measure, the questionnaire takes 2-5 minutes to complete. It can also be given as a structured interview.

Reliability and Validity of the Scale

Reliability: No overall measure of internal consistency has been calculated for the scale, but on the original sample of regular drinkers, psychiatric patients, and persons referred for addictions problems, all items on the SADD exhibited high correlations with the total score (Spearman *rho* = .47 to .81; Raistrick et al., 1983), which suggests that the scale measures a single construct. The split-half reliability (correlation of total score on even numbered items with score on odd numbered items) of the scale was also high (Spearman *rho* = .87).

In a study using a Brazilian version of the SADD, 25 addictions treatment clients completed the SADD questionnaire on two occasions, and 25 were given the self-report version of the SADD on one occasion and were interviewed using the SADD on a second occasion (Jorge & Masur, 1985). The test-retest reliability for both these groups was high (Group 1, Spearman *rho* = .90; Group 2, Spearman *rho* = .81). The test-retest reliability for most items on the scale was also very high.

Validity: The content validity of the measure is high. The SADD was constructed to reflect all dimensions of the alcohol dependence syndrome as formulated by Edwards and Gross (1976). Items on the scale cover subjective and behavioral aspects of dependence, withdrawal discomfort, tolerance, impairment of control, salience of drinking and drink seeking behavior, and narrowing of the drinking repertoire. The SADD appears to be weakest on this last topic, narrowing of repertoire, which is intended to reflect the extent to which the person has developed a lifestyle where habitual drinking is the main focus. The SADD includes only one item on this "Do you drink in the morning, afternoon, and evening", and Davidson (1987) has suggested in one report that this item may not be completely adequate for measuring this aspect of dependence.

Davidson, Bunting, and Raistrick (1989) used factor analysis on data from referrals to three addictions treatment units to assess the extent to which the SADD appeared to be measuring a unitary construct measure. Their results supported the interpretation of the SADD as measuring a single construct. One item ("Do you try to control your drinking by giving it up completely for days or weeks at a time?") did not fit the single dimension of the items, and on the basis of these analyses, the authors recommend that this item be dropped and a 14-item scale be used.

The SADD has been shown to correlate highly with other measures of dependence. Davidson & Raistrick (1986) found that the SADD correlated highly with the Severity of Alcohol Dependence Questionnaire (SADQ) in a sample of persons receiving addictions treatment (Spearman *rho* = .83) and with ratings of dependence made by clinicians using a short form of the Edinburgh Alcohol Dependence Schedule (EADS) for a sample of referrals to addictions treatment (Spearman *rho* = .51). A later study (Gorman, Duffy, Raine & Taylor, 1989) of referrals to an addictions unit also found the SADD to correlate highly with the SADQ ($r = .81$). Jorge, De Padua, and Masur (1986) found scores on the SADD to be significantly correlated with Alcohol Dependence Scale (ADS) scores ($r = .61$) among a sample of problem drinkers from Brazil. However, they found low levels of agreement between the SADD (low, medium and high) and the ADS (low, moderate, substantial and severe) classifications of problem drinking. Problem drinkers who showed a high level of alcohol dependence on the SADD were classified as having a lower level of alcohol dependence on the ADS.

Davidson and Raistrick (1986) found a significant correlation of the SADD with alcohol consumption (Spearman *rho* = .53) and an alcohol problem checklist (Spearman *rho* = .61), but no significant relationship of the SADD with liver function tests or blood tests. Gorman et al. (1989) obtained moderate correlations between the SADD and other measures of alcohol problems (the Short Mast, $r = .49$; and the Alcohol-Related Problems Questionnaire, $r = .38$). The Brazilian version of the SADD was found to clearly discriminate between a group of social drinkers and individuals participating in an alcohol treatment program using a cutoff of 10 ($x^2 = 89.6$, $p < .001$).

Two hypotheses relating the SADD to other types of measures were supported in the study by Davidson and Raistrick (1986): (1) that viewing drinking behavior as controlled by external factors (rather than self-controlled) would be associated with higher dependence (Spearman *rho* of SADD score with score on the Drinking Related Locus of Control = .49); and (2) that dependence among those who were admitted to an addiction unit (mean age = 40.1 years, SD ± 11.4 years) would be unrelated to age (Spearman *rho* = -.18, n.s.).

Ability to Measure Change: Because the form measures mild to severe dependence, it is likely to be more sensitive to changes in dependence than a measure that focuses only on the extreme end of the spectrum. There appear to be no studies, however, specifically examining this issue.

Other Forms: The parent version of the SADD was the 34-item Alcohol Dependence Data (ADD) questionnaire, but the SADD is used almost exclusively now. A version of the SADD has been validated for use with young offenders (McMurrin & Hollin, 1989; McMurrin, Hollin, & Bowen, 1990; on this version, items that young offenders found difficult to understand were reworded). A Brazilian version of the SADD has been validated for use with addiction treatment samples (Jorge, De Padua, & Masur, 1986; Jorge & Masur, 1985).

Availability: The SADD can be used without charge.

SADD. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average SADD Score
Davidson & Raistrick (1986)	Referrals to addiction treatment units:					
	- Study 1	40.1	107	56	163	19.7
	- Study 2	36.4	22	16	38	*
	- Study 3	37.1	*	*	27	*
Davidson et al. (1989)	Referrals to addiction treatment units:					
	- Leeds	40.1	107	56	163	19.7
	- Derry	40.5	83	12	95	27.7
	- Omagh	36.6	90	19	109	26.7
Gorman et al. (1989)	Male referrals to an alcohol treatment unit	38.0	72	0	72	21.4
	Female referrals to an alcohol treatment unit	40.0	0	29	29	22.4
Jorge & Masur (1985)	Alcoholics in addictions inpatient and outpatient programs	44.0	44	6	50	24.5
Jorge et al. (1986)	Alcoholics in addictions inpatient and outpatient programs	21-66	183	18	201	*
McMurrin & Hollin (1989)	Male young offenders	18.3	100	0	100	8.1
McMurrin et al. (1990)	Male young offenders	18.8	56	6	56	9.7
Raistrick et al. (1983)[a]	Regular drinkers	33.5	24	17	41	11.9
	Psychiatric patients	38.6	19	11	30	20.2
	Alcoholics	39.6	113	60	173	52.1

Note. * indicates no values reported.

[a] Mean scores based on the 34-item ADD (scores range from 0 to 117).

References:

Davidson, R., Bunting, B., & Raistrick, D. (1989). The homogeneity of the alcohol dependence syndrome: A factor analysis of the SADD questionnaire. *British Journal of Addiction, 84,* 907-915.

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Davidson, R. (1987). Assessment of the alcohol dependence syndrome: A review of self-report screening questionnaires. *British Journal of Clinical Psychology, 26*, 243-255.

Edwards, G., & Gross, M.M. (1976). Alcohol dependence: Provisional description of a clinical syndrome. *British Medical Journal, 1,* 1058-1061.

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Jorge, M.R., & Masur, J. (1985). The use of the short-form Alcohol Dependence Data Questionnaire (SADD) in Brazilian alcoholic patients. *British Journal of Addiction, 80*, 301-305.

Jorge, M.R., De Padua, F.C., & Masur, J. (1986). Lack of agreement between two questionnaires that evaluate the severity of the alcohol dependence syndrome. *Drug and Alcohol Dependence, 18*, 355-360.

McMurran, M., & Hollin, C.R. (1989). The Short Alcohol Dependence Data (SADD) questionnaire: Norms and reliability data for male young offenders. *British Journal of Addiction, 84*, 315-317.

McMurran, M., Hollin, C.R., & Bowen, A. (1990). Consistency of alcohol self-report measures in a male young offender population. *British Journal of Addiction, 85*, 205-208.

Measure: Alcohol Dependence Scale (ADS)

The Alcohol Dependence Scale provides a quantitative measure of the severity of alcohol dependence consistent with the concept of alcohol dependence syndrome described by Edwards and Gross (1976). It is widely used and has been demonstrated to be reliable and valid. The printed instructions for the ADS refer to the past 12-month period. However, instructions for administering the ADS can be altered for use as an outcome measure at selected periods (e.g., 6 months, 12 months, 24 months) following treatment. Use of the ADS has been reported mostly for clinical adult samples (males and females) but has also included males from general population and corrections samples. No studies using the ADS with specific cultural groups have been found.

Alcohol Dependence Scale (ADS)

INSTRUCTIONS:

1. Carefully read each question and the possible answers provided. Answer each question by circling the ONE choice that is most true for you.
2. The word "drinking" in a question refers to "drinking of alcoholic beverages".
3. Take as much time as you need. Work carefully, and try to finish as soon as possible. Please answer ALL questions.

These questions refer to the past 12 months

1. How much did you drink the last time you drank?
   a. Enough to get high or less
   b. Enough to get drunk
   c. Enough to pass out

2. Do you often have hangovers on Sunday or Monday mornings?
   a. No
   b. Yes

3. Have you had the "shakes" when sobering up (hands tremble, shake inside)?
   a. No
   b. Sometimes
   c. Almost every time I drink

4. Do you get physically sick (e.g. vomit, stomach cramps) as a result of drinking?
   a. No
   b. Sometimes
   c. Almost every time I drink

5. Have you had the "DTs" (delirium tremens) - that is, seen, felt or heard things not really there; felt very anxious, restless, and over excited?
   a. No
   b. Once
   c. Several times

6. When you drink, do you stumble about, stagger, and weave?
   a. No
   b. Sometimes
   c. Often

7. As a result of drinking, have you felt overly hot and sweaty (feverish)?
   a. No
   b. Once
   c. Several times

8. As a result of drinking, have you seen things that were not really there?
   a. No
   b. Once
   c. Several times

9. Do you panic because you fear you may not have a drink when you need it?
   a. No
   b. Yes

10. Have you had blackouts ("loss of memory" without passing out) as a result of drinking?
   a. No, never
   b. Sometimes
   c. Often
   d. Almost every time I drink

11. Do you carry a bottle with you or keep one close at hand?
   a. No
   b. Some of the time
   c. Most of the time

12. After a period of abstinence (not drinking), do you end up drinking heavily again?
   a. No
   b. Sometimes
   c. Almost every time

13. In the past 12 months, have you passed out as a result of drinking?
   a. No
   b. Once
   c. More than once

14. Have you had a convulsion (fit) following a period of drinking?
   a. No
   b. Once
   c. Several times

15. Do you drink throughout the day?
   a. No
   b. Yes

16. After drinking heavily, has your thinking been fuzzy or unclear?
   a. No
   b. Yes, but only for a few hours
   c. Yes, for one or two days
   d. Yes, for many days

17. As a result of drinking, have you felt your heart beating rapidly?
   a. No
   b. Once
   c. Several times

18. Do you almost constantly think about drinking and alcohol?
   a. No
   b. Yes

19. As a result of drinking, have you heard "things" that were not really there?
   a. No
   b. Once
   c. Several times

20. Have you had weird and frightening sensations when drinking?
   a. No
   b. Once or twice
   c. Often

21. As a result of drinking, have you "felt things" crawling on you that were not really there (e.g. bugs, spiders)?
   a. No
   b. Once
   c. Several times

22. With respect to blackouts (loss of memory):
   a. Have never had a blackout
   b. Have had blackouts that last less than an hour
   c. Have had blackouts that last for several hours
   d. Have had blackouts that last a day or more

23. Have you tried to cut down on your drinking and failed?
   a. No
   b. Once
   c. Several times

24. Do you gulp drinks (drink quickly)?
   a. No
   b. Yes

25. After taking one or two drinks, can you usually stop?
   a. Yes
   b. No

Scoring: Dichotomous items are scored 0,1; three choice items are scored 0, 1, 2; and four choice items are scored 0, 1, 2, 3. In each case, the higher the value the greater the dependence. Total scores can range from 0 to 47.

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Detailed Review of the Alcohol Dependence Scale (ADS)

Original Publication:

Skinner, H.A. & Horn, J.L. (1984). *Alcohol Dependence Scale (ADS): User's Guide.* Toronto: Addiction Research Foundation.

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Description: The Alcohol Dependence Scale was developed from factor analytic studies of a larger questionnaire (the Alcohol Use Inventory) initially developed by Horn and Wanberg (1969). In a 1981 report, Skinner identified a general factor of the Alcohol Use Inventory that corresponded to the alcohol dependence syndrome defined by Edwards and Gross (1976). This factor consisted of the following four scales of the Alcohol Use Inventory: loss of behavioral control, psychophysical withdrawal symptoms, psychoperceptual withdrawal symptoms, and obsessive-compulsive drinking style. Initial evaluation of the ADS was based on the 29 items that were included in these four scales (Skinner & Allen, 1982). A later version of the ADS published in 1984 deleted seven items and added three new items, with the final scale consisting of 25 items (Skinner & Horn, 1984). Most items are scored on three-point scales, although the measure also includes several dichotomous items (yes/no) and some four-point scales.

In the ADS User's Guide, Skinner and Horn (1984) provided interpretation of scores based on quartile groupings derived from the study done by Skinner and Allen (1982). A score of 0 is interpreted as no evidence of alcohol dependence, 1-13 (1st quartile) is low level of alcohol dependence, 14-21 (2nd quartile) intermediate level, 22-30 (3rd quartile) substantial level, 31-47 (4th quartile) severe level. A recent study by Ross, Gavin, and Skinner (1990) recommended that a cut-off between eight and nine provided the best correspondence with a DSM III diagnosis of alcohol abuse/dependence.

Target Population: The ADS is widely used by Ontario addictions treatment programs. It has been used extensively with adult alcohol abusers, general populations and incarcerated offender populations.

Administration: The ADS can be administered in questionnaire or interview format and takes less than 10 minutes to complete. A computerized version is also available. Instructions for administering the test are provided on the questionnaire booklet.

Reliability and Validity of the Scale

Initial analyses of the reliability and validity of the ADS have been based on studies that used the early 29-item version of the ADS. The 29-item and 25-item version of the ADS are very highly correlated ($r = .96$ to .99) (Skinner & Horn, 1984), suggesting that these findings would also likely apply to the current revised version.

Reliability: The ADS has high internal consistency. Skinner and Horn (1984) reported alpha coefficients of .90 and .91 for two samples who completed the revised ADS. They also estimated a test-retest reliability of .92 after one week of therapy using data from the Alcohol Use Inventory used in the Wanberg, et al. (1977) study. Other studies reported internal consistency coefficients of .92 (Skinner & Allen, 1982), .85 (Kivlahan et al., 1989), and .94 for a sample of incarcerated offenders (Hodgins & Lightfoot, 1989).

Validity: The ADS was derived from a larger scale and was not developed specifically to measure alcohol dependence. It has been criticized for being weighted towards physiological aspects of dependence (about half of the items) and for not being consistently reflective of all aspects that have been formally defined by Edwards and Gross as the alcohol dependence syndrome (Davidson, 1987; Stockwell, 1985). Nevertheless, the ADS appears to cover most of the domains generally associated with alcohol dependence. Factor analyses of the original 29-item ADS indicated a large first factor (reflecting primarily withdrawal symptoms) and two smaller factors apparently measuring obsessive-compulsive drinking and loss of behavior control (Skinner & Allen, 1982).

Skinner and Allen's (1982) study also showed evidence of response bias on the ADS with a correlation of $r = -.22$ with Denial response style from the Basic Personality Inventory (Jackson, 1976) and $r = -.51$ with Social Desirability from the Personality Research Form (Jackson, 1974). Kivlahan et al. (1989) also found a significant relationship with social desirability ($r = -.34$, using Edwards' Social Desirability Scale (Edwards, 1957)). It should be noted, however, that all approaches to assessing substance abuse are vulnerable to the effects of social desirability - these behaviors are, by definition, socially undesirable. It is likely that the SADD and similar measures are also correlated with measures of social desirability, but thus far social desirability has only been assessed in relation to the ADS.

The studies by Skinner and Allen (1982) and by Ross, et al. (1990) demonstrated that the ADS is positively associated with measures of similar and related constructs. Both studies found a significant relationship of the ADS with the MAST (r = .69, Skinner & Allen, 1982; and r = .79, Ross, et al., 1990). The ADS was also found to be related to other general measures of alcohol abuse including DSM III diagnosis of current alcohol abuse (r = .58), DSM-III alcohol related symptom counts (r = .73) (Ross et al., 1990), the General Alcoholism scale of the Alcohol Use Inventory (r = .67, Kivlahan et al., 1989), and a number of other alcohol consumption measures (Kivlahan et al., 1989; Leonard, Harwood, & Blane, 1988; Ross et al., 1990; Skinner & Allen, 1982).

Ross et al.'s (1990) study provided evidence for the diagnostic accuracy of the ADS. Using a cutoff score of 8/9, 88% of their sample were correctly classified as either having or not having a current diagnosis of alcohol disorder (when compared with DSM-III diagnosis).

Other validation data for the ADS are based on confirming expected relationships between alcohol dependence and other variables. As expected, those who received higher scores on the ADS tended to have more psychological problems (Ross et al., 1990; Skinner & Allen, 1982), more medical problems (Skinner & Allen, 1982), and more legal problems (Kivlahan et al., 1989). On the other hand, although the development of alcohol dependence might be associated with alcohol-related brain damage, no consistent relationship has been found between scores on the ADS and neuropsychological functioning (Kivlahan et al., 1989; Skinner & Allen, 1982). There is evidence that scores on the ADS are associated with the clients' subjective perceptions about their ability to control their alcohol consumption. Skinner and Allen grouped clients into four levels of dependence based on ADS scores and found that higher levels of alcohol dependence were significantly associated with responding that cutting down to a few drinks was not possible, a belief that abstinence was the only way to improve, and self-identification as an alcoholic.

Studies using the ADS have also looked at the ability of the ADS to predict treatment compliance and treatment outcome. Because the actual relationship between dependence and outcome has not been clearly established, the findings using the ADS are difficult to interpret in terms of support or lack of support for the validity of the scale. For example, it might be argued that the more severely dependent will do better in treatment because they have "hit bottom" and are ready to change. On the other hand, it might be argued that the less dependent are more responsive to treatment because their problems are less entrenched. As suggested by Babor, Cooney, and Laurenman (1987), the relationship between dependence and treatment compliance and outcome may well depend on a number of factors including sample characteristics and type of outcome measure.

Skinner and Horn (1984) reported that among socially stable problem drinkers with low to moderate ADS scores, greater compliance and better outcomes following treatment were associated with *higher* scores on the ADS. Among the treatment sample studied by

Skinner and Allen (1982), there was a trend for those with higher scores on the ADS to be *less likely* to show up for treatment. Kivlahan, et al. (1989) found no relationship between ADS score and treatment completion, completion of aftercare, or amount of drinking during the follow-up period; although their study found a significant relationship between higher ADS scores at admission and having relapsed at least once during follow-up. Finally, in a study of self-efficacy with 60 problem drinkers recruited through the newspaper for a controlled drinking program, Sitharthan and Kavanagh (1990) found that the ADS was not significantly related to drinking during the 6-month follow-up ($r = .19$), although the SADD did predict drinking during this period ($r = .33$).

Ability to Measure Change: No studies have been reported that used the ADS as a 12-month follow-up outcome measure. As with all self-report measures of alcohol dependence, the vulnerability of the ADS to effects of social desirability may be a problem for interpreting scores on the scale when it is used as an outcome measure.

Other Forms: Only the current 25-item version of the ADS is recommended for use in assessment and treatment outcome applications.

Availability: The ADS can be purchased from Marketing Services, Addiction Research Foundation, 33 Russell St., Toronto, Ontario, M5S 2S1, (1-800-661-1111).

ADS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average ADS Scores
Hodgins & Lightfoot (1989)[a]	Incarcerated male offenders in minimum, medium and maximum prisons	28.6	268	0	268	14.3
Kivlahan et al.[b] (1989)	Men admitted to an inpatient treatment program at a VA Medical Centre	45.7	268	0	268	16.8
Leonard et al. (1988)	General population male drinkers	23.0	67	0	67	7.5
Ross et al. (1990)	Clients presenting for drug and alcohol treatment	34.7[c]	260	241	501	17.5
Sanchez-Craig et al. (1991)	Problem drinkers in 3 experimental conditions:					
	- guideline self-help condition	38.0	21	13	34	13.0
	- manual self-help condition	43.0	21	12	33	10.0
	- individual counselling condition	39.0	19	10	29	12.0
Sitharthan & Kavanagh (1990)	Clients attending a controlled drinking program	38.2	40	20	60	17.0
Skinner & Allen (1982)[b]	Individuals seeking treatment for alcohol problems	38.0	180	45	225	23.1
Skinner & Horn (1984)[b]	Socially stable problem drinkers (data from Sanchez-Craig, 1980)	34.8	52	18	70	14.9
	Individuals seeking assistance for alcohol-related problems	38.0	154	15	169	*
	Individuals seeking assistance for alcohol-related problems	33.0	73	23	96	*
Solomon & Annis (1990)	Males receiving alcohol treatment	39.0	100	0	100	19.4

Note. * indicates no values reported.

[a] Estimates based on retrospective reports of pre-incarceration drinking.

[b] Estimates based on 29-item ADS.

[c] Estimate based on a weighted sample of 390 males and 121 females.

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D. Adverse Consequences of Drug Use

At present, there are few standardized measures of drug consequences. As with consequences of alcohol use, no standard framework of consequences has been developed (see previous section). In addition, as described in the section on drug consumption, measures related to drug use must deal with a variety of complexities, including different consequences from different drugs, effects of multiple drug use, and complications from different routes of administration (particularly intravenous use).

Recent research on consequences of drug use has focused primarily on the generalizability of the alcohol dependence syndrome to other substances (e.g., Kosten, Rounsaville, Babor, Spitzer, & Williams, 1987; Skinner, 1990). The dependence syndrome has been generalized to substances other than alcohol in various diagnostic systems (e.g., DSM-III-R) and quantitative scales suitable for outcome measures should be available in the near future. For example, Raistrick (personal communication, 1991) is in the process of validating a general measure of dependence (similar to the SADD) suitable for use with alcohol or drugs.

Aside from specific measures of the dependence syndrome, some more general measures of drug consequences have been in use for some time. Example 3.9 from the previous section on alcohol consequences included measurement of consequences from a range of drug categories. In addition, a standardized measure of drug consequences (the Drug Abuse Screening Test - DAST) has been validated. A description of the DAST follows.

References:

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Measure: Drug Abuse Screening Test (DAST)

The Drug Abuse Screening Test is a general measure of drug abuse. The DAST yields a quantitative index of drug problems, including some drug dependence symptoms and other consequences resulting from the abuse of psychoactive drugs (not including alcohol) experienced over a 12-month period. Instructions for administering the DAST can be altered to cover different time periods in treatment follow-up (e.g., past 6 months, past 12 months, or past 24 months). Good validity and reliability have been demonstrated for the DAST. It has been used with young to middle-aged adults seeking treatment for substance abuse, but studies have not been found where the DAST was used with specific subpopulations or cultural groups. A version for adolescents is also available.

Drug Abuse Screening Test (DAST)

INSTRUCTIONS: The following questions concern information about your potential involvement with drugs *not including alcoholic beverages* during the past 12 months. Carefully read each statement and decide if your answer is "Yes" or "No". Then, circle the appropriate response beside the question.

In the statements "drug abuse" refers to (1) the use of prescribed or over the counter drugs in excess of the directions and (2) any non-medical use of drugs. The various classes of drugs may include: cannabis (e.g., marijuana, hash), solvents, tranquilizers (e.g., Valium), barbiturates, cocaine, stimulants (e.g., speed), hallucinogens (e.g., LSD) or narcotics (e.g., heroin). Remember that the questions *do not* include alcoholic beverages.

Please answer every question. If you have difficulty with a statement, then choose the response that is mostly right.

	These questions refer to the past 12 months.	*Circle Your Response*	
1.	Have you used drugs other than those required for medical reasons?	Yes	No
2.	Have you abused prescription drugs?	Yes	No
3.	Do you abuse more than one drug at a time?	Yes	No
4.	Can you get through the week without using drugs?	Yes	No
5.	Are you always able to stop using drugs when you want to?	Yes	No
6.	Have you had "blackouts" or "flashbacks" as a result of drug use?	Yes	No
7.	Do you ever feel bad or guilty about your drug use?	Yes	No
8.	Does your spouse (or parents) ever complain about your involvement with drugs?	Yes	No
9.	Has drug abuse created problems between you and your spouse or your parents?	Yes	No
10.	Have you lost friends because of your use of drugs?	Yes	No
11.	Have you neglected your family because of your use of drugs?	Yes	No
12.	Have you been in trouble at work because of drug abuse?	Yes	No
13.	Have you lost a job because of drug abuse?	Yes	No
14.	Have you gotten into fights when under the influence of drugs?	Yes	No
15.	Have you engaged in illegal activities in order to obtain drugs?	Yes	No
16.	Have you been arrested for possession of illegal drugs?	Yes	No
17.	Have you ever experienced withdrawal symptoms (felt sick) when you stopped taking drugs?	Yes	No
18.	Have you had medical problems as a result of your drug use (e.g., memory loss, hepatitis, convulsions, bleeding, etc)?	Yes	No
19.	Have you gone to anyone for help for a drug problem?	Yes	No
20.	Have you been involved in a treatment program specifically related to drug use?	Yes	No

Scoring: The DAST is scored by summing the number of responses that indicate drug use problems. "No" responses to Item #4 and Item #5 indicate problems with drug use. For all other items, a "Yes" response indicates drug use problems. Total DAST scores range from 0 to 20. A score of zero indicates no drug abuse problems were reported. Higher scores reflect the relative degree of problems the client has experienced as a result of his/her drug use. A score of 20 indicates substantial drug abuse problems. Several studies (Gavin, Ross, & Skinner, 1989; Skinner, 1982) have found evidence to support using a cutoff score of five or higher on the DAST to indicate drug abuse.

©1982 by the Addiction Research Foundation and Harvey A. Skinner, Ph.D. For more information on the DAST, contact Dr. Harvey Skinner at the Addiction Research Foundation, 33 Russell St. Toronto, Canada, M5S 2S1.

Detailed Review of the Drug Abuse Screening Test (DAST)

Original Publication:

Skinner, H.A. (1982). The Drug Abuse Screening Test. *Addictive Behaviors, 7,* 363-371.

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Description: The DAST was modelled on the Michigan Alcoholism Screening Test (MAST; Selzer, 1971). It was developed as a brief measure of the seriousness of drug involvement for both clinical case finding during assessment and use in treatment evaluation research. The DAST consists of 20 items that assess some features of the drug dependence syndrome (inability to stop using drugs, inability to get through a week without drugs, and withdrawal symptoms with the cessation of drug use) and other consequences relating to the use or abuse of prescribed, over-the-counter and illicit drugs. Respondents indicate whether they have experienced each drug-related problem in the past 12 months.

Target Populations: The DAST has been used with both male and female clients seeking help for substance abuse problems. A form of the DAST has been adapted for use by adolescents (the word "work" has been replaced by "school"), although no reports have been published on the psychometric properties of this adapted scale.

Administration: The DAST is usually self-administered but can also be given in an interview format. It can be completed in about 5 minutes.

Reliability and Validity of the Scale

Much of the evidence of the reliability and validity of the DAST was based on an earlier 28-item version described by Skinner in a 1982 report. In this report, Skinner (1982) also used the 20-item DAST. He found that the two scales correlated almost perfectly (r = .99). Given this very high correlation between the two versions, it is likely that the findings that were based on the 28-item scale also apply to the 20-item version of the DAST. In the following sections, estimates from Skinner's 1982 report refer to the 28-item version of the DAST unless otherwise specified.

Reliability: Good internal consistency has been found for the scale. On the 28-item scale, Skinner (1982) found high internal consistency for a sample including both alcohol and drug abusers (Cronbach's *alpha* = .92) and for a subsample including only drug abusers (alpha = .86). High internal consistency estimates were also reported in this study for the shorter 20-item scale: *alpha* = .95 for alcohol and drug abusing clients and *alpha* = .86 for a subsample of drug abusers (Skinner, 1982). A somewhat lower internal consistency estimate (*alpha* = .74) was found for the 20-item scale for a sample of 105 narcotic users (Skinner & Goldberg, 1986).

Validity: Items on the DAST include statements that indicate misuse or abuse of drugs, drug dependence, and other drug-related consequences. A principal components analysis based on the early 28-item version of the DAST completed by both alcohol and drug abusers revealed a strong single underlying drug abuse dimension (Skinner, 1982). In a later study of narcotic users, Skinner and Goldberg (1986) identified five dimensions of drug abuse measured by the DAST: drug dependence, social problems, medical problems, polydrug abuse, and previous treatment.

DAST scores have been significantly correlated with a number of drug use measures. The DAST has correlated with frequency of the use of cannabis (r = .55), barbiturates (r = .47), amphetamines (r = .36), and opiates other than heroin (r = .35) (Skinner, 1982). In a sample of narcotic users, scores on the DAST were related to number of drugs currently used (r = .29), perceived problems with narcotics use (r = .30), and history of stimulant (r = .38), hallucinogen (r = .35), and cannabis use (r = .55), as well as use of cannabis over the past three months (r = .31) (Skinner & Goldberg, 1986). Substantial correlations have also been obtained between DAST scores and DSM-III diagnosis of lifetime and current drug abuse/dependence (r = .75 and .74, respectively), DSM-III identified drug-related symptoms over the previous month (r = .71), number of drugs used in the past week (r = .49), and number of days drugs were used over the past week (r = .41) for a sample of adults seeking treatment for alcohol and drug problems (Gavin, Ross, & Skinner, 1989).

Correlations of the DAST with measures of alcohol use indicate that the DAST is able to discriminate drug-related problems from alcohol-related problems. Skinner (1982) found a low negative correlation of $r = -.21$ between the DAST and the MAST (a measure of alcohol abuse). Skinner and Goldberg (1986) found that DAST scores were not strongly related to any of three measures of alcohol use (use in last year, use in past 60 days, and whether use was viewed as a problem; r ranged between .15 and .20, $p > .001$). Gavin et al. (1989) obtained small to modest negative correlations between the DAST and the Alcohol Dependence Scale ($r = -.13$), MAST ($r = -.19$), diagnosis of DSM-III alcohol abuse/dependence ($r = -.31$ and -.25, for current and lifetime diagnosis, respectively), and several self-report measures of alcohol use ($r = -.09$ to -.13). These findings indicate that the DAST is sensitive to problems resulting from drug use in particular and not to problems relating more generally to alcohol abuse. Similarly, a one-way analysis of variance showed that average total DAST scores differentiated between groups identified as having alcohol problems only, drug and alcohol problems, and drug problems only ($F(2,220) = 112.9$, $p < .001$; Skinner, 1982).

A concern with any drug use instrument is that respondents may misrepresent their drug use and related drug problems. However, Skinner (1982) found only modest correlations between DAST scores and three measures of response bias: tendency to deny or minimize problems ($r = -.28$), tendency toward socially desirable responses ($r = -.38$), and carelessness ($r = .15$). These correlations were smaller for a subsample of respondents ($n = 86$) that included only individuals experiencing drug-related problems (r ranging from .08 to .31).

As would be predicted on the basis of other studies relating age to drug use, younger people tended to have more drug problems as measured by the DAST than older people (correlations between age and DAST scores have ranged from $r = -.40$ to -.49; Gavin et al., 1989; Skinner, 1982; Skinner & Goldberg, 1986). Also, as would be expected, higher DAST scores have been negatively related to social stability ($r = -.27$), indicating that drug problems are related to problems in maintaining accommodation, employment problems, and reduced family contact (Skinner, 1982). Scores on the DAST have also been found to be positively related to measures of impulsive and reckless behavior ($r = .42$) and deviant attitudes ($r = .54$) (Skinner, 1982). All of these correlations provide additional support for the validity of the DAST. Several studies have demonstrated the diagnostic validity of the DAST. The test has been found to be highly correlated with DSM III diagnosis of drug dependence among drug and alcohol patients (Gavin et al., 1989), and psychiatric patients (Staley & El-Guebaly, 1990).

Ability to Measure Change: The DAST provides a score ranging from 0 to 20 that should be sensitive to changes in drug using experiences over a 12-month period. Skinner (1982) suggested that scores on the DAST can be compared at different assessment and follow-up periods to monitor change in the number of experienced drug abuse consequences over time. No published studies have been found, however, where the DAST was used as an outcome measure.

Other Forms: A brief 10-item DAST has been developed (Skinner & Gavin, 1992). An adolescent version has also been developed.

Availability: Copies of the DAST can be purchased through Marketing Services, Addiction Research Foundation, 33 Russell Street, Toronto, Ontario, M5S 2S1, (1-800-661-1111).

DAST. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average DAST Score
Skinner (1982)	Clients presenting with alcohol and drug problems:	32.5	161	62	223	*
	- alcohol problems only		*	*	137	4.5
	- drug and alcohol problems		*	*	35	15.2
	- drug problems only		*	*	51	17.8
Skinner & Goldberg (1986)	Narcotic users seeking treatment	30.0	80	25	105	12.8
Gavin et al. (1989)	Clients seeking treatment for drug and alcohol problems	34.7	260	241	501	*

Note. * indicates no values reported.

References:

Gavin, D.R., Ross, H.E., & Skinner, H.A. (1989). Diagnostic validity of the drug abuse screening test in the assessment of DSM-III drug disorders. *British Journal of Addiction, 84,* 301-307.

Selzer, M.L. (1971). The Michigan Alcoholism Screening Test: The quest for a new diagnostic instrument. *American Journal of Psychiatry, 127,* 1653-1658.

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Skinner, H.A., & Gavin, D.R. (1992). Guidelines for using the Drug Abuse Screening Test. Unpublished manuscript.

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Staley, D., & El-Guebaly, N. (1990). Psychometric properties of the Drug Abuse Screening Test in a psychiatric patient population. *Addictive Behaviors, 15,* 257-264.

E. Measures of Drinking/Drug Use Situations

Although more typically used for treatment planning, measures of drinking or drug using situations can be used in assessing treatment outcomes and may be particularly useful where outcomes are being monitored for purposes of relapse prevention. Two measures are reviewed here: the Inventory of Drinking Situations (IDS) and the Inventory of Drug Use Situations (IDTS).

Measure: Inventory of Drinking Situations (IDS)

The Inventory of Drinking Situations assesses situations in which an individual drank heavily in the past 12 months, in terms of eight types of situations. The subscales have shown high internal consistency and evidence has been found for the validity of the IDS and its subscales. The IDS can be used both as a planning tool for alcohol treatment and relapse prevention, and can also be used to measure outcomes. It has been used with adolescent, adult and elderly males and females, and is currently being evaluated for use with specific cultural groups including native populations.

Sample Items from the Inventory of Drinking Situations (IDS)

I DRANK HEAVILY...

Unpleasant Emotions
When I was angry at the way things had turned out

Physical Discomfort
When I had trouble sleeping

Pleasant Emotions
When I felt confident and relaxed

Testing Personal Control
When I wondered about my self-control over alcohol and felt like having a drink to try it out

Urges and Temptations to Drink
When I remembered how good it tasted

Conflict With Others
When other people interfered with my plans

Social Pressure to Drink
When I met a friend and he/she suggested that we have a drink together

Pleasant Times With Others
When I was relaxed with a good friend and wanted to have a good time

Instructions for IDS: Listed are a number of situations or events in which some people drink heavily. Read each item carefully, and answer in terms of your own drinking over the past year.
If you "NEVER" drank heavily in that situation, circle "1"
If you "RARELY" drank heavily in that situation, circle "2"
If you "FREQUENTLY" drank heavily in that situation, circle "3"
If you "ALMOST ALWAYS" drank heavily in that situation, circle "4"

Scoring: To score the IDS, responses are first recoded so that "1" = "0", "2" = "1", "3" = "2", and "4" = "3". Overall scores for the eight subscales are determined by summing scores for all items included on a subscale. These overall subscale scores can then be used to calculate "Problem Index" scores. "Problem Index" scores are calculated by dividing overall subscale scores by the total possible score for the subscale and multiplying by 100. High scores indicate frequent heavy drinking over the past year for the situation assessed. Annis, Graham, and Davis (1987) suggest that an IDS Problem Index score of 0 indicates low risk of heavy drinking for the client, scores from 1 to 33 suggest moderate risk, scores from 34 to 66 represent high risk situations, and scores from 67 to 100 indicate very high risk situations. A Client Profile plotting Problem Index scores on a bar graph can be used to summarize the pattern of heavy drinking behavior across situations for both pre- and post-program periods. The computer software version of the IDS automatically scores a client's responses and generates a profile of a client's situation-specific drinking behavior.

Detailed Review of the Inventory of Drinking Situations (IDS)

Original Publication:

Annis, H.M., Graham, J.M., & Davis, C.S. (1987). *Inventory of Drinking Situations (IDS): User's Guide.* Toronto: Addiction Research Foundation.

Principal Author:

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Description: The Inventory of Drinking Situations (IDS) is a 100-item questionnaire which measures frequency of drinking behavior in specific drinking-related situations. On the basis of this information, profiles of the situations presenting a significant challenge to the client for abstaining from alcohol or maintaining moderate drinking practices can be developed. These profiles can be used as a treatment planning tool for relapse risk. The IDS can also be used as a follow-up measure to supplement other measures of alcohol use following treatment.

IDS items describe personal and social situations that have been commonly associated with alcohol relapse (Annis, 1986; Annis, Graham, & Davis, 1987). Personal State categories assess prior heavy drinking behavior in response to *Unpleasant Emotions* (20 items), *Pleasant Emotions* (10 items), *Physical Discomfort* (10 items), and *Testing Personal Control* (10 items) and *Urges and Temptations* (10 items) situations. The broad class of items assessing drinking behavior in situations involving other people includes *Conflict with Others* (20 items), *Social Pressure to Drink* (10 items), and *Pleasant Times with Others* (10 items). For each of the 100 situations described on the IDS, clients indicate how frequently they drank heavily in response to the situation over the past year using four response options: (1) never, (2) rarely, (3) frequently, and (4) almost always.

Target Populations: The IDS was developed for use with clients involved in alcohol treatment or relapse prevention programs. It has been used with both male and female and younger and older alcohol clients, but has not been specifically evaluated with respect to other special populations.

Administration: The questionnaire form of the IDS is usually self-administered and can be completed either individually or in a group setting. A computerized version of the IDS is also available. The IDS takes about 15-20 minutes to complete.

Reliability and Validity of the Scale

Reliability: High internal consistency has been found for the IDS subscales. Annis et al. (1987) reported estimates of Cronbach's *alpha* for the eight subscales ranging from .87 to .96 for a sample of individuals seeking treatment for alcohol-related problems. Item-total correlations reported for all IDS subscales were also high (*r* ranging from .39 to .82) based on data from the same sample.

Validity: The IDS was based on the theoretical framework first proposed by Marlatt and Gordon (1980) whose work identified situations commonly associated with relapse. In developing the IDS, questionnaires that focused on situation-specific drinking behavior were reviewed. In addition, clinicians and clients were consulted (Annis et al., 1987). Cannon, Leeka, Patterson and Baker (1990) conducted a principal components analysis of the IDS based on the responses of male alcoholics who were inpatients at a VA hospital involved in an alcoholic dependence program. They found that a three-factor solution describing Negative Feelings, Positive Feelings, and Testing Personal Control provided the best summary of the data.

Annis et al. (1987) found that IDS subscale scores were significantly associated with other measures of drinking behavior. IDS subscale scores were significantly correlated with total alcohol consumed during the past year (*r* ranging from .27 for *Testing Personal Control*, to .43 for *Pleasant Emotions*), typical quantity of alcohol consumed per day (*r* ranging from .12 for *Social Pressure to Drink*, to .27 for *Unpleasant Emotions*), and frequency of drinking (*r* ranging from .18 for *Unpleasant Emotions* to .35 for *Pleasant Emotions*; a nonsignificant correlation was found only for *Testing Personal Control*). Correlations between IDS subscale scores and scores on the Alcohol Dependence Scale (ADS; Skinner & Horn, 1984) were also significant, with *r* ranging from .24 (for *Pleasant Emotions*) to .52 (for *Unpleasant Emotions*).

With respect to other measures, Annis et al. (1987) found that high frequency of drinking in situations on the IDS was negatively associated with social stability (*r* ranging from -.13 (*Physical Discomfort*) to -.24 (*Unpleasant Emotions*), and positively related to self versus other-focused locus of concern (*r* ranging from .25, for *Unpleasant Emotions*, to .13, for *Testing Personal Control*; no significant correlation was found between locus of concern and the *Physical Discomfort* subscale). They also found that the number of years of problem drinking was correlated with IDS subscales describing negative situations: *Unpleasant Emotions* ($r = .21$), *Physical Discomfort* ($r = .12$), and *Conflict with Others* ($r = .12$). Finally, they found significant, positive correlations between time spent drinking alone and *Unpleasant Emotions* ($r = .14$) and *Physical Discomfort* ($r = .15$) IDS subscales. Negative correlations were obtained for time spent drinking alone and *Pleasant Emotions* ($\mathrm{r} = -.15$), *Social Pressure to Drink* ($\mathrm{r} = -.27$) and *Pleasant Times with Others* ($\mathrm{r} = -.34$) subscales.

Annis (1990) described the results of a study that used the IDS to discriminate between different types of alcohol clients. She found that two IDS profiles reliably classified clients in her sample based on demographic and alcohol consumption variables:
1) High Negative (drinking in response to negative situations, 73% accuracy rate), and
2) High Positive (drinking in response to positive situations, 60% accuracy rate). Clients characterized by a High Negative Profile were more likely to drink alone, be more dependent on alcohol and be female compared to clients with a High Positive Profile (who were more likely to drink with others, be less alcohol dependent and were more often male).

Annis (1990) also described the results of another study that considered the outcomes of clients with "generalized" IDS profiles (similar pattern of frequent or infrequent heavy drinking across all situational risk categories) compared to clients with "differentiated" IDS profiles (showing greater and less drinking risk for different drinking situations). Clients with differentiated IDS profiles obtained more positive outcomes following relapse prevention counselling compared to more traditional alcohol counselling. Clients with generalized IDS profiles, however, obtained equal benefits from both treatment options.

When using the IDS, some attention to age and gender differences may be warranted. Annis et al. (1987) found that males scored higher than female alcohol abusers on *Pleasant Emotions* (27.1 vs. 23.4), *Pleasant Times with Others* (27.4 vs. 24.6), and *Social Pressure to Drink* (26.6 vs. 24.6) subscales, while females obtained higher scores on the *Unpleasant Emotions* subscale than males (28.1 vs. 26.2). For both males and females, older clients reported lower IDS scores than younger clients for all subscales, except the *Physical Discomfort* subscale.

Ability to Measure Change: No studies were found that reported using the IDS as an outcome measure. The IDS has been used more frequently for assessment and treatment planning, but it could be used to supplement other alcohol consumption measures at follow-up, especially for use in relapse prevention.

Other Forms: A 42-item short form of the IDS is available for research studies, but the 100-item IDS is recommended when it is used as a clinical tool (Annis et al., 1987). An aboriginal version is currently being developed by ARF.

Availability: Computerized and paper-and-pencil questionnaire versions of the IDS can be purchased from Marketing Services, Addiction Research Foundation, 33 Russell Street, Toronto, Ontario, M5S 2S1 (1-800-661-1111).

IDS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	IDS Subscale Scores[a]							
						UE[b]	PE	PD	TPC	UT	CO[b]	SPD	PTO
Annis et al. (1987)	Alcohol abusing clients seeking treatment	40.0	202	45	247	16.7	16.4	11.4	13.7	13.5	13.1	16.3	17.0
	Females seeking treatment for alcohol-related problems (original clients, and additional female clients recruited for the study)	39.6	0	134	134	18.1	13.4	11.5	12.6	12.6	13.8	14.6	14.6
	Males from original sample seeking treatment for alcohol related problems	41.1	202	0	202	16.2	17.1	11.1	13.6	13.6	12.8	16.6	17.4
Annis & Davis (1988)	Alcohol abusing clients seeking treatment	45.1	38	3	41	*	*	*	*	*	*	*	*
Cannon et al. (1990)	Inpatients in a VA hospital alcohol dependence program	44.3	336	0	336	*	*	*	*	*	*	*	*

Note. * indicates no values reported. Normative data on the IDS are reported by age and gender groups in Appendix B of the IDS manual (Annis et al., 1987).

[a] UE = *Unpleasant Emotions;* PE = *Pleasant Emotions;* PD = *Physical Discomfort;* TPC = *Testing Personal Control;* UT = *Urges and Temptations;* CO = *Conflict with Others;* SPD = *Social Pressure to Drink;* PTO = *Pleasant Times with Others.* (Maximum score of 30 on each subscale).

[b] Scores on *Unpleasant Emotion* and *Conflict with Others* (*n* of items = 20 each) were divided by 2 to permit comparisons with other (10 item) scales.

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Annis, H.M. (1986). A relapse prevention model for treatment of alcoholics. In W.R. Miller & N. Heather (Eds.), *Treating addictive behaviors: Processes of change.* New York: Plenum Press.

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Annis, H.M., Graham, J.M., & Davis, C.S. (1987). *Inventory of Drinking Situations (IDS): User's Guide.* Toronto: Addiction Research Foundation of Ontario.

Cannon, D.S., Leeka, J.K., Patterson, E.T., & Baker, T.B. (1990). Principal components analysis of the Inventory of Drinking Situations: Empirical categories of drinking by alcoholics. *Addictive Behaviors, 15,* 265-269.

Marlatt, G.A., & Gordon, J.R. (1980). Determinants of relapse: Implications for the maintenance of behaviour change. In P. Davidson & S. Davidson (Eds.), *Behavioral medicine: Changing health lifestyles.* New York: Brunner/Mazel.

Skinner, H., & Horn, J.L. (1984). *Alcohol Dependence Scale (ADS): User's guide.* Toronto: Addiction Research Foundation.

Measure: Inventory of Drug-Taking Situations (IDTS)

The Inventory of Drug-Taking Situations produces profiles of an individual's drug use over the past 12 months. The IDTS is similar in content and form to the Inventory of Drinking Situations (IDS; Annis, Graham & Davis, 1987), measuring the frequency of drug use with respect to the situational contexts of use. Drugs used by polydrug users are assessed separately on the IDTS. Early evidence suggests that the IDTS is generally reliable and valid, although the Physical Discomfort subscale should probably be interpreted with some caution. IDTS profiles can be used as a treatment planning tool for drug treatment and relapse risk, and can be used to supplement other measures of drug use following treatment. The IDTS has mainly been used with young drug abusers.

Sample Items from the Inventory of Drug-Taking Situations (IDTS)

I USED __________ ...
(drug name)

Unpleasant Emotions
When I was depressed about things in general

Physical Discomfort
When I felt shaky, sick or nauseous

Pleasant Emotions
When I was excited about something

Testing Personal Control
When I wanted to find out whether I could use these drugs occasionally without getting hooked

Urges and Temptations to Use
When I unexpectedly found some of these drugs or happened to see something that reminded me of these drugs

Conflict With Others
When I felt tense or uneasy in the presence of someone

Social Pressure to Use
When I was out with friends and they kept suggesting we go somewhere and use these drugs

Pleasant Times With Others
When I was with friends and wanted to increase my enjoyment

Instructions for IDTS: Listed below are a number of situations or events in which some people use __________(*drug name*). Read each item carefully, and answer in terms of your own use of __________(*drug name*) over the past year.

If you "NEVER" used these drugs in that situation, circle "1"
If you "RARELY" used these drugs in that situation, circle "2"
If you "FREQUENTLY" used these drugs in that situation, circle "3"
If you "ALMOST ALWAYS" used these drugs in that situation, circle "4"

Scoring: To score the IDTS, responses are first recoded so that "never" responses (1) are scored "0", a response of "rarely" (2) is scored "1", "frequently" (3) is scored "2", and "almost always" (4) is scored "3". Overall scores for the eight subscales are calculated by summing all items included on the scale. "Problem Index" scores are calculated by dividing overall subscale scores by the total possible score for the subscale and multiplying by 100 (scores range from 0 to 100). An IDTS Problem Index score of 0 indicates that the client never used drugs when experiencing the described situation over the past year. Higher scores indicate more frequent drug use. Scores from 34 to 66 represent high risk situations, and scores from 67 to 100 indicate very high risk situations. Problem Index subscale scores plotted on a bar graph can be used to compare drug use across situations from pre- and post-program periods. The computer software version of the IDTS automatically scores a client's responses and generates a profile of a client's situation-specific drinking behavior for each drug that is assessed on the IDTS.

Detailed Review of the Inventory of Drug-Taking Situations (IDTS)

Original Publication:

Annis, H.M., & Graham, J.M. (1991). *Inventory of Drug-Taking Situations (IDTS): User's Guide (Draft).* Toronto: Addiction Research Foundation.

Principal Author:

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Description: The Inventory of Drug-Taking Situations (IDTS) consists of 50 items which are completed for each substance the client is currently abusing (on the computerized version of the IDTS, three substances - primary, secondary and tertiary substances of abuse - are assessed). These situational-specific profiles of drug use behavior provide information on situations presenting a significant challenge to the client for abstaining from drug abuse. IDTS items encompass two major classes of drug use situations: those related to Personal States (unpleasant emotions - 10 items, physical discomfort, pleasant emotions, testing personal control, urges/temptations - all measured by 5 items), and Situations Involving Other People (conflict with others - 10 items, social pressure, pleasant times with others - 5 items). For each substance of abuse, respondents use a 4-point scale to indicate how often they used the drug in the situation described over the past year. Response options range from "never" to "almost always."

Target Populations: The available data on the IDTS are based on studies of young drug abusers. It has not been validated for use with other populations.

Administration: Both questionnaire and computerized versions of the IDTS are available. The IDTS is usually self-administered and takes between 15-45 minutes to complete depending on the number of drugs being assessed.

Reliability and Validity of the Scale

Reliability: Annis and Graham (1991) found excellent to moderate internal consistency for six of the eight IDTS subscales. The two 10-item scales, *Unpleasant Emotions* and *Conflict with Others*, obtained coefficient *alphas* of .92 and .90. Both *Social Pressure to Use* and *Testing Personal Control* subscales had coefficient *alphas* of .78, and *Pleasant Emotions* and *Pleasant Times with Others* subscales had *alphas* of .76. Lower reliability estimates were found for the remaining two subscales: *Urges and Temptations* (alpha = .68) and *Physical Discomfort* (*alpha* = .59). With the exception of one item on the Physical Discomfort subscale, all item-subscale total correlations were greater than .20 as recommended by Nunnally (1978). In a study of male incarcerated adolescents, McKay et al. (1992) found high internal consistency for seven subscales (Cronbach's *alpha* of .80 or higher) with the *Physical Discomfort* scale somewhat lower (*alpha* = .68).

Validity: Similar to the IDS (Annis, Graham & Davies, 1987), items on the IDTS were developed on the basis of Marlatt and Gordon's (1980) categories of relapse risk situations. Confirmatory factor analysis showed that an eight factor solution reflecting the eight hypothesized subscales of the IDTS provided an acceptable fit to data obtained from 364 young drug abusers (14-25 years old) (Annis & Graham, 1991). A second-order analysis showed that a three factor solution representing "Negative Situations," "Positive Situations," and "Testing Personal Control" provided the best summary of the eight IDTS subscales (Annis & Graham, 1991).

Annis and Graham (1991) found that for clients who had cocaine as their primary substance of abuse (n = 159), five of eight IDTS subscales were significantly correlated with frequency of cocaine use (*r*'s ranged from .22 to .29), but only one significant relationship was found between IDTS subscale scores and volume measures (typical daily use of cocaine, total use of cocaine over the previous 3 months) with the IDTS score on *Pleasant Emotions* significantly related to Total Use scores, *r* = .19). All IDTS subscale scores were, however, related to Drug Abuse Screening Test (DAST; Skinner, 1982) scores for these respondents (*r* ranged from .20 to .51).

For clients whose primary substance was cannabis (n = 98), significant correlations ranging from .20 to .35 were found between frequency of use and seven of eight IDTS subscales (Annis & Graham, 1991). Significant correlations were also obtained between IDTS cannabis subscale scores and typical daily use (6 of 8 subscales, *r* ranged from .20 to .38), and total use scores (7 of 8 subscales, *r* ranged from .23 to .42). As well, all IDTS subscale scores for cannabis use were correlated with DAST scores (*r* ranging from .29 to .51).

Alcohol is considered a drug class on the IDTS, and for clients who had alcohol as their primary substance (n = 76) significant correlations were obtained for seven of eight IDTS subscales and frequency of alcohol use (*r* ranging from .21 to .44) (Annis & Graham, 1991). All IDTS subscale scores for these clients were significantly correlated with typical daily use of alcohol (r ranging from .20 to .35) and total use over the previous three months (*r* ranging from .42 to .68). IDTS subscale scores for alcohol were also strongly related to Alcohol Dependence Scale (Skinner & Horn, 1984) scores (*r* ranged from .42 to .68).

McKay et al. (1992) calculated an average drug use frequency score based on use of marijuana, cocaine, crack, benzodiazepines, uppers, heroin, LSD, other hallucinogens, and poppers. All eight IDTS subscale scores (based on the first drug of choice) were significantly correlated with average drug use frequency (*r* = .45 to *r* = .62). Additional analyses for marijuana and hard drugs indicated that IDTS scores were related to use of these specific drugs as well.

Ability to Measure Change: The IDTS is a multi-scale measure with five or more items comprising each scale. Although no data on change scores have been published, the use of multiple item subscales should make the test sensitive to changes in drug use patterns.

Other Forms: There are both questionnaire and computerized versions of the IDTS.

Availability: Contact the author about using the IDTS.

IDTS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	IDTS Subscale Scores[ab]							
						UE	PD	PE	TPC	UT	CO	SPU	PTO
Annis & Graham (1991)	Clients attending the Young Drug Users Clinic at the ARF	20.4	269	95	364	60.1	36.2	53.6	39.0	60.4	43.6	57.9	56.4

Note. Normative data are reported by age and gender groups in Appendix C of the IDTS Manual (Annis & Graham, 1991).

[a] UE = *Unpleasant Emotions*; PE = *Pleasant Emotions*; PD = *Physical Discomfort*; TPC = *Testing Personal Control*; UT = *Urges and Temptations*; CO = *Conflict with Others*; SPD = *Social Pressure to Drink*; PTO = *Pleasant Times with Others*. (Maximum score of 30 on each subscale).

[b] IDTS subscale scores were based only on reports related to "primary" substance of abuse. Scores were calculated using the "Problem Index" formula of [(Sum of # of items endorsed)/Total # of items)] x 100.

References:

Annis, H.M., & Graham, J.M. (1991). *Inventory of Drug-Taking Situations (IDTS): User's Guide (Draft).* Toronto: Addiction Research Foundation of Ontario.

Annis, H.M., Graham, J.M., & Davis, C.S. (1987). *Inventory of Drinking Situations (IDS): User's Guide.* Toronto: Addiction Research Foundation.

Marlatt, G.A., & Gordon, J.R. (1980). Determinants of relapse: Implications for the maintenance of behavior change. In P. Davidson & S. Davidson (Eds.), *Behavioral medicine: Changing health lifestyles.* New York: Brunner/Mazel.

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F. Measures of Self-Efficacy and Coping Regarding Avoidance of Substance Use

Measures of self-efficacy and coping regarding the avoidance of substance use are related to treatment outcomes. A goal of treatment is not only to reduce or eliminate the person's alcohol or drug use at the time of treatment, but also to help clients maintain abstinence or reduced use thereafter. Measures of self-efficacy are used to assess the person's confidence in his or her ability to resist abusing alcohol or drugs. Although confidence in resisting use is not the same as actually resisting use, these measures tend to be related to lower levels of substance use. Two measures of self-efficacy are reviewed: the Situational Confidence Questionnaire (SCQ) and the Drug Avoidance Self-Efficacy Scale (DASES).

Coping is related to self-efficacy but includes actual strategies for coping rather than confidence in ability to cope. One measure of coping is reviewed here, the Coping Behaviors Inventory (CBI).

Measure: Situational Confidence Questionnaire (SCQ)

The Situational Confidence Questionnaire provides a measure of alcohol-related self-efficacy by measuring how confident a client is that he or she will be able to resist drinking heavily in the future for eight categories of high-risk drinking situations. There is evidence supporting the validity and reliability of the SCQ and its sensitivity to changes in self-efficacy following treatment. The SCQ has been used with males and females, and with a wide range of age groups (although it has not been specifically tested for youth, elderly, or specific cultural populations). The SCQ can be used to estimate the stability of drinking outcomes after treatment.

Sample Items from the Situational Confidence Questionnaire Subscales

Unpleasant Emotions
If I felt that I had let myself down
If I were angry at the way things had turned out

Physical Discomfort
If I felt nauseous
If my stomach felt like it was tied in knots

Pleasant Emotions
If I felt confident and relaxed
If everything were going well

Testing Personal Control
If I convinced myself that I was a new person and could take a few drinks
If I wondered about self-control over alcohol and felt like having a drink to try it out

Urges and Temptations
If I remembered how good it tasted
If I passed by a liquor store

Social Problems at Work
If I weren't getting along well with others at work
If pressure built up at work because of the demands of my supervisor

Social Tension
If I had an argument with a friend
If other people didn't seem to like me

Positive Social Situations
If I were at a party and other people were drinking
If I were relaxed with a good friend and wanted to have a good time

Instructions for SCQ: Listed are a number of situations or events in which some people experience a drinking problem. Imagine yourself as you are right now in each of these situations. Indicate on the scale provided how confident you are that you would be able to resist the urge to drink heavily in that situation. Circle 100 if you 100% confident right now that you could resist the urge to drink heavily; 80 if 80% confident; 60 if you are 60% confident. If you are more unconfident than confident, circle 40 to indicate that you are only 40% confident that you could resist the urge to drink heavily; 20 for 20% confident; 0 if you have no confidence at all about that situation.

Scoring: Items are rated on a six point scale ranging from 0% (not at all confident) to 100% (very confident). Average confidence scores are calculated for each of the eight categories and overall SCQ scores are calculated by averaging confidence scores across all eight areas. In addition to the separate subscale scores, profiles can be constructed of the client's confidence in resisting drinking based on scores on the eight drinking categories. These profiles may help the client and the therapist identify areas of strength and areas of vulnerability in resisting urges to drink. The computer version of the SCQ automatically scores a client's responses and generates a profile of the client's confidence ratings across the eight categories of drinking situations.

Detailed Review of the Situational Confidence Questionnaire (SCQ)

Original Publication:

Annis, H.M., & Graham, J.M. (1988). *Situational Confidence Questionnaire User's Guide.* Toronto: Addiction Research Foundation.

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Description: The SCQ was developed to assess a client's perceived ability to cope effectively with alcohol in high risk drinking situations in everyday life. Items included on the SCQ were selected from the pool of 100 items included on the Inventory of Drinking Situations (Annis, Graham, & Davis, 1987). These items were chosen to cover the eight categories of high-risk relapse situations that Marlatt and Gordon (1980) identified as being common alcohol relapse situations.

Three general classes of situations associated with relapse are included in the SCQ: 1) Negative Affect Situations; 2) Positive Affect Situations; and 3) Urges and Testing. Negative affect situations include *Unpleasant Emotions* (8 items), *Physical Discomfort* (4 items), *Social Problems at Work* (3 items) and *Social Tension* (5 items) categories. *Pleasant Emotions* (3 items) and *Positive Social Situations* (8 items) are included as positive affect situations. Urges and testing situations include *Testing Personal Control* (4 items) and *Urges and Temptations* (4 items).

For each of the 39 items on the SCQ, clients consider the situation described and indicate how confident they are that they would be able to resist the urge to drink heavily in that situation. Anchored on a six-point scale, response options range from 0% (not at all confident) to 100% (very confident), with mid-range options including 20%, 40%, 60% and 80% confidence levels.

Target Populations: The SCQ has been used with both males and females, but has not been specifically tested for use with population subgroups such as the elderly, natives, and youth.

Reliability and Validity of the Scale

Reliability: Good internal consistency has been reported for the SCQ. Annis and Graham (1988) reported Cronbach's *alpha* values ranging from .81 to .97 for the eight subscales and an *alpha* of .98 for the overall scale.

Validity: Items included on the SCQ describe situations that are frequently associated with relapse. Results of confirmatory factor analysis supported the use of the 39 items and use of eight relapse-risk categories for obtaining differential assessments of alcohol-related self-efficacy (Annis & Graham, 1988).

Annis and Graham (1988) found that scores on the SCQ were significantly related to alcohol consumption measures for the preceding period (typical frequency of drinking days and quantity of alcohol consumed per week), with greater levels of alcohol consumption associated with lower levels of reported self-efficacy across all eight drinking situations (*r* ranging from -.12 to -.23). Some support for the validity of subscales was found in that those who reported drinking more with others were less confident about their ability to resist drinking in a positive social situation. Solomon and Annis (1989) found the SCQ to be moderately correlated with the Hopelessness Scale ($r = -.37$), and the Beck Depression Inventory ($r = -.52$), indicating that those with lower confidence for resisting drinking heavily also felt more hopeless and depressed about the future. No significant relationship between SCQ scores and social desirability has been found (Seltenreich, 1989). Using an earlier version of the SCQ (100 items), Miller, Ross, Emmerson, and Todd (1989) found that scores on the SCQ discriminated between former alcoholics who had been abstinent for at least one year (average SCQ confidence score = 91.7%) and clients who were entering treatment (average SCQ confidence score = 66.1%).

The SCQ has also been used to predict treatment outcomes. Annis and Davis (1988) found that the first and second lowest SCQ subscale ratings obtained at intake corresponded with the situation in which a heavy drinking relapse occurred for six of ten clients who relapsed during treatment in their study.

Solomon and Annis (1990) found that clients with lower self-efficacy scores at intake to treatment were drinking significantly more heavily on drinking occasions at follow-up; in addition; SCQ scores at follow-up accounted for 18-25% of the variance in number of drinking days, average daily alcohol consumption and total quantity of alcohol consumed.

Some age and gender differences have been found on SCQ scores. Male clients have been found to report less self-efficacy for not drinking in response to Pleasant Emotions than females, and younger clients (under 35 years of age) indicated less confidence across all drinking situations than older clients (Annis & Graham, 1988).

Ability to Measure Change: A number of studies have found significant increases in confidence scores between intake to treatment and post-treatment, 3- and 6-month follow-ups (Annis, 1990; Annis & Davis, 1988; Solomon & Annis, 1990).

Other Forms: A report has recently been published describing a Swedish version of the SCQ (Sandahl, Linberg, & Ronnberg, 1990). The SCQ has also been translated into Spanish, Swahili, Russian and Norwegian as part of a study sponsored by the World Health Organization. A drug using version of the SCQ is available (The Drug Taking Confidence Questionnaire - DTCQ) and is currently being validated.

Availability: Both computerized and questionnaire versions of the SCQ are available from Marketing Services, Addiction Research Foundation, 33 Russell Street, Toronto, Ontario, M5S 2S1 (1-800-661-1111).

SCQ. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average SCQ Subscales Scores[a]								Average score on SCQ
						UE	PD	PE	TPC	UT	SPW	ST	PSS	
Annis & Graham (1988)	Clients in alcoholism treatment	18-76	309	115	424	Intake 63.9	79.7	80.5	61.8	68.4	72.1	71.6	62.4	69.9
Annis (1990)	Clients receiving alcohol sensitizing drug therapy and relapse prevention training	*	*	*	*	Intake								68.2
						Discharge								90.1
						6-mo. FU								89.9
Annis & Davis (1988)	Clients in relapse prevention treatment	24-64	38	3	41	Intake								62.4
						6-mo. FU								89.7
Miller, Ross, Emmerson & Todt (1989)	Clients entering treatment at VA medical centre	*	*	*	46									66.1
	Former clients, abstinent at least 1 year	*	*	*	25									91.7
Solomon & Annis (1990)	Male alcoholics in inpatient treatment	20-63	100	0	100	Intake								72.7
						3-mo. FU								90.5

Note. * indicates no values reported.

[a] UE = Unpleasant Emotions; PD = Physical Distress; PE = Pleasant Emotions; TPC = Testing Personal Control; UT - Urges and Temptations; SPW = Social Problems at Work; ST = Social Tension; PSS = Positive Social Situations.

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Marlatt, G.A., & Gordon, J.R. (1980). Determinants of relapse: Implications for the maintenance of behavior change. In P. Davidson & S. Davidson (Eds.), *Behavioral medicine: Changing health lifestyles.* New York: Brunner/Mazel.

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Measure: Drug Avoidance Self-Efficacy Scale (DASES)

The Drug Avoidance Self-Efficacy Scale was developed for use with young drug abusers by G.W. Martin, D.A. Wilkinson, & C.X. Poulos in 1991. Self-efficacy is defined as a belief or expectancy that a particular task can be successfully performed (Bandura, 1977). It is a measure of confidence in one's ability to do something. It differs from "self-confidence" in that it always applies to specific tasks or situations as opposed to a more general statement about the person. When applied to drug use behavior, self-efficacy refers to confidence in the ability to successfully cope with risk situations without using drugs. The DASES is useful as an outcome measure because it has demonstrated predictive validity; that is, scores on the scale have been shown to predict subsequent drug use behavior. It provides a measure of treatment progress with regard to coping with risk situations. There is evidence supporting the reliability and validity of the scale, although its use has been restricted to young multiple drug users (aged 16-30).

DRUG AVOIDANCE SELF-EFFICACY SCALE (DASES)

INSTRUCTIONS: Please circle a number from 1 to 7 for each question, indicating what you would be likely to do in each situation.

1. Imagine that you are going to a party where you will meet new people. You feel that drug/alcohol use will relax you and make you more confident. Could you avoid drug/alcohol use?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

2. Imagine that you have just blown a good job, you are home alone and depressed. Would you give in to the urge to take drugs/alcohol which are in the house?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

3. Imagine that you are home with a loved one, and feeling angry after a fight. You want to make up, but at the same time you want to get stoned/loaded. Could you resist the urge to take drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

4. Imagine that you are feeling good and have no responsibilities for a couple of days. The only thing you see against getting a bit stoned/loaded is that you have promised yourself you would go straight for 2 months, and you still have 3 weeks to go. Would you take drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

5. Imagine it is late, you cannot sleep and drugs/alcohol are available in the house. You have decided not to use drugs. Could you resist the urge to use drugs to help you get to sleep?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

6. Imagine that a new job is starting tomorrow, you are going out with friends and expecting a good time. Could you resist the urge to celebrate with drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

7. Imagine that your are home with your loved one, and very angry after a fight. You are tempted to get back at your partner by getting stoned/loaded. Would you give in to the temptation?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

8. Imagine that a very important relationship has just ended, and you are very depressed. would you give in to the urge to take drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

9. Imagine that you have run into 2 friends who are celebrating a $100 lottery win with drugs/alcohol. Could you resist their urging to join them in drug/alcohol use?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

10. Imagine that you are at a party and feeling uptight. Most people seem to be having a good time. You are tempted to use drugs/alcohol to loosen up. Would you?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

11. Imagine that you promised yourself to stay straight for 2 months but you have just blown your 5 week record with one hit or drink. Would this situation lead you to take a second one?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

12. Imagine that you had managed to stay straight for a near record time, but last night you blew it. Because of last night you are feeling weak. would you take drugs/alcohol tonight?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

13. Imagine that you are home alone and depressed. Could you resist the urge to go out and find some drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

14. Imagine that a good friend has accused you of being insensitive. Now you are feeling hurt and tempted to use drugs/alcohol. Could you resist?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

15. Imagine that a good friend is feeling miserable. He wants you to join him in heavy discussion and drug/alcohol use to pick his spirits up. Could you resist the urge to take drugs/alcohol?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

16. Imagine that you are home alone; it is a dull weekend with nothing in particular to look forward to. You are bored. Would you give in to the urge to get stoned/loaded?

1	2	3	4	5	6	7
certainly no	very likely no	probably no	really can't say	probably yes	very likely yes	certainly yes

Scoring: Each item is scored on a 1-7 scale. Items (2,4, 7, 8, 10, 11, 12, 16) are recoded (7 = 1; 6 = 2; 5 = 3; 3 = 5; 2 = 6; 7 = 1) prior to scoring. The total score is obtained by summing across the 16 items.

Detailed Review of the Drug Avoidance Self-Efficacy Scale (DASES)

Original Publication:

Martin, G. W. (1992). *The role of self-efficacy in the prediction of treatment outcome for young, multiple drug users.* Unpublished doctoral dissertation, University of Toronto, Toronto.

Principal Author:

Garth Martin, Ph.D.
Addiction Research Foundation
Toronto, Ontario
M5S 2S1

Description: The DASES consists of 16 items. For each of the 16 items, clients are asked to imagine themselves in a particular situation and to rate their level of confidence (self-efficacy) to resist drug use in that situation. Each of the scale items represents a different situation in which a drug abuser might be tempted to use drugs. Responses are rated on a 7-point scale ranging from "certainly yes" to "certainly no" which corresponds to a measure of "strength" of self-efficacy (Bandura, 1977).

Target Populations: The DASES is appropriate for use with young multiple drug using clients. It has not been tested with any other populations.

Reliability and Validity of the Scale

Evidence of reliability and validity was obtained in a controlled comparison of residential and brief outpatient treatments. A limitation of this evidence is that the 16-item drug use self-efficacy scale was embedded within a larger, 55-item scale during all administrations of the scale.

Reliability: Good internal consistency has been reported for the scale (Martin, 1992). Cronbach's *alpha* for the scale was .91; split-half reliability was .90.

Validity: Self-efficacy scores at assessment were significantly correlated with two measures of drug use severity (the number of drug classes used and the number of such classes identified as a problem; $r = -.24$ and $r = -.32$, respectively) and a measure of peer support (number of close friends without a drug problem; $r = .23$). Self-efficacy scores also increased significantly during each of the treatments but significantly more so in the more intensive residential treatment. Self-efficacy assessed at the completion of treatment was a significant predictor of drug use outcome for both treatments but the evidence suggested that post-treatment self-efficacy ratings are less stable for clients in a residential setting and that repeated measures of self-efficacy following a period of return to the natural environment is desirable.

Ability to Measure Change: The DASES covers a broad range of levels of confidence and has been shown to be sensitive to changes in self-efficacy associated with treatment as well as to post-treatment adaptation to the natural environment following inpatient treatment.

Populations Norms: Psychometric properties of the scale were based upon a sample of 373 young multiple drug users (aged 16-30 years) entering treatment. Reliability and validity data were based upon a subset of this sample (*n* = 162) having the following characteristics: mean age 22.4 yrs., 21% female, 42.9% with current legal problems, 63.6% unemployed and not in school, 15% with post-secondary school education. Clients had used, on average, 5.4 different classes of drugs in the previous 12 months and reported that 1.8 of these classes were still a problem. Mean duration of drug use was 5.8 years and the mean score on the DAST28 was 15.1.

Availability: The DASES can be used without charge.

References:

Martin, G.W. (1992). The role of self-efficacy in the prediction of treatment outcome for young, multiple drug users. Unpublished PhD dissertation, University of Toronto.

Measure: The Coping Behaviours Inventory (CBI)

The Coping Behaviours Inventory is a 36-item inventory that assesses the alcoholic's use of coping strategies in response to an urge to drink. Research suggests that it is a reliable and valid measure of the frequency of use of cognitive and behavioral coping responses. Use of the CBI in outcome studies has shown the measure to be a sensitive indicator of change following addictions treatment. The scale has been applied to male and female alcoholics from a range of age groups including adolescents, adults and the elderly. No research is available on use of the CBI with different cultural groups.

The Coping Behaviours Inventory (CBI)

INSTRUCTIONS: If there are times when you want to start drinking again, how do you try to stop yourself? Here are a list of ways some people have tried to stop themselves. Which of these ways have you tried? There are four choices: Usually, Often, Sometimes and Never. Please circle the number which comes closest to how often you have used these ways to stop yourself from starting to drink again. There are no right or wrong answers or trick questions. We want to know what you have tried.

		Usually	Often	Sometimes	Never
1.	Thinking about how much better off I am without drink	0	1	2	3
2.	Telephoning a friend	0	1	2	3
3.	Keeping in the company of non drinkers	0	1	2	3
4.	Thinking positively	0	1	2	3
5.	Thinking of the mess I've got myself into through drinking	0	1	2	3
6.	Stopping to examine my motives and eliminating the false ones	0	1	2	3
7.	Thinking of the promises I've made to others	0	1	2	3
8.	Staying indoors - hiding	0	1	2	3
9.	Pausing and really thinking the whole alcoholic cycle through	0	1	2	3
10.	Leaving my money at home	0	1	2	3
11.	Recognizing that life is no bed of roses but drink is not the answer	0	1	2	3
12.	Going to an A.A. meeting	0	1	2	3
13.	Knowing that by not drinking I can show my face again without fear of what others will think	0	1	2	3
14.	Cheering myself up by buying myself something special instead	0	1	2	3
15.	Facing up to my bad feelings instead of trying to drown them	0	1	2	3
16.	Working harder	0	1	2	3
17.	Realizing it's just not worth it	0	1	2	3
18.	Waiting it out until everything is shut	0	1	2	3
19.	Remembering how I've let my friends and family down in the past	0	1	2	3
20.	Keeping away from people who drink	0	1	2	3

		Usually	Often	Sometimes	Never
21.	Going for a walk	0	1	2	3
22.	Looking on the bright side and trying to stop making excuses for myself	0	1	2	3
23.	Realizing it's affecting my health	0	1	2	3
24.	Start doing something in the house	0	1	2	3
25.	Considering the effect it will have on my family	0	1	2	3
26.	Reminding myself of the good life I can have without drink	0	1	2	3
27.	Getting in touch with old drinking friends who are better now	0	1	2	3
28.	Making up my mind that I'm going to stop playing games with myself	0	1	2	3
29.	Eating a good meal	0	1	2	3
30.	Avoiding places where I drank	0	1	2	3
31.	Thinking about all the people who have helped me	0	1	2	3
32.	Saying I am well and wish to stay so	0	1	2	3
33.	Going to sleep	0	1	2	3
34.	Remembering how it has affected my family	0	1	2	3
35.	Forcing myself to go to work	0	1	2	3
36.	Trying to face life instead of avoiding it	0	1	2	3

Scoring: The CBI can be scored by summing the responses for a total raw score or by dividing the total by the number of items to obtain an average score. Lower scores reflect more frequent use.

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Detailed Review of the Coping Behaviours Inventory (CBI)

Original Publication:

Litman, G.K., Stapleton, J., Oppenheim, A.N., & Peleg, M. (1983). An instrument for measuring coping behaviours in hospitalized alcoholics: Implications for relapse prevention treatment. *British Journal of Addiction, 78,* 269-276.

Principal Author:

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7BH, England

Description: The Coping Behaviours Inventory (CBI) was designed specifically to assess the behaviors and thoughts used by alcoholics in response to external circumstances or internal mood states to prevent, avoid or control the resumption of heavy drinking. The inventory consists of a list of 14 cognitive and 22 behavioral options. The respondent indicates how often he or she uses each coping behavior to avoid relapse. Frequency of use is rated on a four-point scale from 0 (I have usually tried this) to 3 (I have never tried this).

Target Populations: The CBI was developed for use with alcoholic patients from all age groups.

Administration: The CBI is a self-administered inventory that takes approximately five minutes to complete.

Reliability and Validity of the Scale

Reliability: A comparison of the factor structures of the 60-item and 36-item versions of the CBI produced correlations of r = .91, .81, .65 and .31 for the four main test factors (Positive Thinking, Negative Thinking, Avoidance/Distraction, and Seeking Social Supports, respectively) (Litman et al., 1983). These findings suggest that the two forms have very similar factor structures. Correlations between the two versions, administered five years apart to two separate samples of alcoholics, indicate that the CBI has a good degree of stability (Litman et al., 1983).

Validity: The content of the inventory is both comprehensive and meaningful to alcoholics because it was developed from intensive interviews with alcoholic patients who described the methods they used to avoid relapse. Those 36 items that had the highest loadings on the main four factors and that significantly discriminated between relapsers and abstainers were retained (Litman et al., 1983). These first four factors account for 59 % of the variance (Litman, Stapleton, Oppenheim, Peleg, & Jackson, 1984).

There are similar patterns of change among addictions populations on the CBI and on related measures. Alcoholics whose coping behaviors increased also showed higher self-efficacy, less temptation to drink (Ito & Donovan, 1990; Ito, Donovan & Hall, 1988), higher levels of social stability and life satisfaction, and lower levels of neuroticism, and physical and social complications (Shaw, Waller, McDougall, MacGarvie, & Dunn, 1990).

Litman, Eiser, Rawson, and Oppenheim (1979) found that abstainers had significantly higher CBI scores than relapsers. Similarly, frequent use of coping strategies (as measured by the CBI) at intake was found to be predictive of a higher rate of abstinence over a 6-month follow-up period (Ito et al., 1990).

Ability to Measure Change: Studies that have used the CBI as an outcome measure have shown the test to be a sensitive indicator of change. Alcoholics show significant increases in CBI scores following addictions treatment (Ito et al., 1988; Shaw et al., 1990).

Other Forms: The Effectiveness of Coping Behaviours Inventory (ECBI) is an alternate form of the CBI (Litman et al., 1984). The items on the two tests are identical but the instructions differ. The ECBI asks respondents to indicate how *effective* the coping behaviors are in stopping them from drinking.

Availability: The CBI can be used without charge.

CBI. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average/Total CBI Score
Ito & Donovan (1990)[ab]	Abstinent alcoholics	36.6	17	0	17	Cognitive 2.1
	Relapsed alcoholics		20	0	20	Cognitive 2.5
Ito et al. (1988)[bc]						Pre- Post-
	Male alcoholics	36.5	39	0	39	Cognitive 2.3 1.9
						Behavioral 3.0 2.9
Litman et al. (1979)[de]	Abstinent alcoholics	45.8	*	*	29	47.4
	Relapsed alcoholics	40.2	*	*	49	41.0
Litman et al. (1984)[ef]	Abstinent alcoholics	17-69	*	*	76	3.9
	Relapsed alcoholics		*	*	89	3.4
Shaw et al. (1990)[bd]	Alcoholics attending an intensive					1-yr.
	4-wk. treatment program:	40.6	*	*	91	Intake FU
	- abstinent		*	*	42	48.6 34.1
	- controlled		*	*	6	43.3 30.8
	- improved		*	*	16	53.1 43.5
	- unchanged/worse		*	*	27	50.4 57.5

Note. * indicates no values reported.
[a] Average scores on the 14 cognitive items only.
[b] Low scores reflect more frequent use of coping behaviors.
[c] Average scores on cognitive and behavioral items.
[d] Raw scores.
[e] High scores reflect more frequent use of coping behaviors.
[f] Raw scores transformed to a 10-point scale.

References:

Ito, J.R., & Donovan, D.M. (1990). Predicting drinking outcome: Demography, chronicity, coping and aftercare. *Addictive Behaviors, 15,* 553-559.

Ito, J.R., Donovan, D.M., & Hall, J.J. (1988). Relapse prevention in alcohol aftercare: Effects on drinking outcome, change process, and aftercare attendance. *British Journal of Addictions, 83,* 171-181.

Litman, G.K., Eiser, J.R., Rawson, N.S.B., & Oppenheim, A.N. (1979). Towards a typology of relapse: Differences in relapse precipitants and coping behaviours between alcoholic relapsers and survivors. *Behaviour, Research and Therapy, 17,* 89-94.

Litman, G.K., Stapleton, J., Oppenheim, A.N., Peleg, M., & Jackson, P. (1984). The relationship between coping behaviours, their effectiveness and alcoholism relapse and survival. *British Journal of Addictions, 79,* 283-291.

Shaw, G.K., Waller, S., McDougall, S., MacGarvie, J., & Dunn, G. (1990). Alcoholism: A follow-up study of participants in an alcohol treatment program. *British Journal of Psychiatry, 157,* 190-196.

PART IV. MEASURES IN LIFE AREAS OTHER THAN SUBSTANCE USE AND ABUSE

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PART IV. MEASURES IN LIFE AREAS OTHER THAN SUBSTANCE USE AND ABUSE

People who have problems with alcohol and other drugs often have problems in other life areas (Marshman, 1978; Institute of Medicine, 1990). Sometimes these problems are a result of substance abuse; sometimes problems in other life areas appear to contribute to substance abuse; and sometimes problems have no apparent relationship with the person's substance problems.

Because of problems in other life areas that appear to be associated with substance abuse, many treatment programs offer interventions not specifically directed at alcohol or drug-using behavior, for example, social skills training, stress management, family and marital counselling, and so on (Rush & Tyas, 1990). Either explicitly or implicitly, one or more of the following assumptions is made: (1) if substance abuse problems are resolved or reduced, other life areas will improve; (2) improvement in other life areas will help achieve and maintain recovery; (3) programs that help substance abusers have a responsibility to treat the whole person and problems in other life areas should be addressed (even if only by referral) whether or not there is a known relationship between these problems and the person's substance abuse problems.

In sum, many addictions treatment programs have an interest in measuring outcomes in life areas other than substance abuse. This information can be used to verify the assumption that reduction in substance abuse leads to improvement in other life areas. For programs that have direct interventions in other life areas, measuring outcomes in targeted life areas is part of examining whether the client has met his or her treatment goals.

The Relationship Between Measuring Life Areas and Measuring "Quality of Life"

Sometimes, well-being in other life areas is referred to generically as "quality of life". The problem with using this term generally to describe a person's status across life areas is that "quality of life" also has other more specific definitions depending on the discipline in which it is used.

The term "quality of life", appears to have first come into common use in relation to several major U.S. and cross-national surveys done during the 1960s and 1970s (Andrews & Withey, 1976; Campbell, Converse, & Rogers, 1976; Cantril, 1965). These surveys focused primarily on people's life satisfaction or happiness with their life circumstances. A second meaning of quality of life emerged in social policy research, where quality of life has been defined less subjectively with reference to certain social indicators - for example, life expectancy, nutrition, and housing (Johnston, 1988). In this context, these measures are not used to measure the life quality of individuals, but are used to describe the conditions in which people live in defined geographic areas. Yet another meaning is used in medical contexts, where quality of life is defined as the extent of disabilities a person suffers due to the effects of treatment of a disease (Mosteller & Falotico-Taylor, 1989).

Because of the variety of definitions of quality of life, none of the measures in the directory is termed explicitly a quality of life measure. To some extent, however, many measures reflect the more general meaning of quality of life sometimes adopted by the addictions field.

The life area measures are grouped into the following categories: Psychological Well-Being, Social/Leisure, Other Life Areas, and Life Stability. Measures that met the criteria of being generally appropriate for use as outcome measures of addictions treatment are included. These scales were selected as clear and robust measures of particular life areas, that might be expected to change as a result of treatment. For information about more omnibus measures (such as the Addiction Severity Index), for measures primarily useful at intake, or for other measures not yet validated for addictions treatment clients; refer to the Annotated Bibliography in Appendix A of the Directory.

Care should be taken that all measures are used in appropriate testing circumstances (see Part II), avoiding any conditions that may reduce the validity of the measure, such as the client being inebriated or in withdrawal, or clients feeling that they should give the interviewer answers that he or she wants.

Bibliography of Selected Research on Measurement of Other Life Areas

Andrews, F.M., & Withey, S.B. (1976). *Social indicators of well-being: Americans' perceptions of life quality.* New York: Plenum Press.

Campbell, A., Converse, P.E., & Rodgers, W.L. (1976). *The quality of American life: Perceptions, evaluations, and satisfactions.* New York: Russell Sage Foundation.

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Marshman, J. (Chair). (1978). *The treatment of alcoholics: An Ontario perspective. The report of the Task Force on Treatment Services for Alcoholics.* Toronto: Addiction Research Foundation.

Mosteller, F., & Falotico-Taylor, J. (Eds.). (1989). *Quality of life and technology assessment. (Monograph of the Council on Health Care Technology).* Washington: National Academy Press.

Rush, B., & Tyas, S., (1990). *Alcohol and other drug services in Ontario: Results of a provincial survey, 1989.* Toronto: Addiction Research Foundation.

A: Psychological Well-Being Measures

The measures included in this section are indicators of subjective feelings of psychological well-being and distress. Feelings of well-being play an important role in addictive behavior and are some of the areas most sensitive to change following treatment. This general area subsumes general life satisfaction, purpose in life, general mental/emotional health, depression, anxiety, self-esteem, assertiveness, aggressiveness, spirituality, and perceived stress. Measures are included for the following: purpose in life, mental/emotional health, depression, anxiety and self-esteem.

Measure: Purpose in Life Test (PIL)

The Purpose in Life Test is a brief and reliable measure of the degree to which an individual feels his or her life is meaningful and has a purpose. The validity of the PIL has been difficult to establish because the characteristics of a meaningful existence are difficult to quantify and are different for each individual. Therefore, although data supporting the scale's validity agree with theoretical predictions, many of the relationships are indirect and small in magnitude. However, the PIL has been applied to a variety of clinical and nonclinical samples and is sensitive to the improvements that result from addictions treatment. The scale has been used extensively with young to middle-aged men and women as well as the elderly. It has been used with Spanish-speaking respondents but no published studies were found validating the PIL for use with other cultural groups.

Detailed Review of the Purpose in Life Test (PIL)

Original Publication:

Crumbaugh, J.C. (1968). Cross-validation of Purpose-in-Life Test based on Frankls' concepts. *Journal of Individual Psychology, 24,* 74-81.

Principal Author: James C. Crumbaugh
Psychometric Affiliates (Publisher)
Murfreesboro, Tennessee

Description: The Purpose-in-Life Test (PIL) is used to measure the degree to which a person experiences a sense of meaning and direction in life. It was devised to test Viktor Frankls' theory that we are strongly motivated to find a purpose and meaning in life and that frustration and neurosis can result when one fails to establish such a sense of personal well-being (Frankl, 1963).

The scale is made up of three parts, but research on the PIL pertains only to the section consisting of 20 self-rated items. These items are answered on a scale ranging from 1 (low purpose) to 7 (high purpose). Objective scoring procedures for the other two sections have not be established.

Target Populations: The PIL is applicable to general and clinical populations.

Administration: The PIL is a self-report measure that can be completed within 10 to 15 minutes.

Scoring and Interpretation: Total scores range from 20 to 140, with higher scores reflecting higher levels of purpose.

Reliability and Validity of the Scale

Reliability: The test has been found to have good internal consistency and reliability. Studies of a variety of population groups, including hospitalized alcoholics found split-half correlations ranging from r = .90 to r = .92 (Crumbaugh, 1968; Crumbaugh & Maholick, 1964). Studies of test-retest reliability have found r coefficients ranging from .68 to .83 over intervals of 12-weeks, 6-weeks and one-week (Meier & Edwards, 1974; Reker, 1977; Reker & Cousins, 1979).

Validity: The validity of the PIL is difficult to assess without quantitative, meaningful life experiences that could serve as criteria (Hutzell, 1987). Furthermore, what constitutes a purposeful life differs greatly from individual to individual. However, there is some evidence that the PIL measures what Frankl termed "existential vacuum". The sum of six items from a set of 13 used by Frankl to estimate the presence of existential vacuum correlated .68 with the PIL in a mixed sample of psychiatric patients and nonpatients (Crumbaugh & Maholick, 1964).

Studies using a variety of population groups have correlated the PIL with related personality variables. The PIL showed significant positive correlations with measures of self-acceptance (r = .40 to .53), self-control (r = .46, .57), and achievement (r = .49 to .71) (Garfield, 1973); positive attitude toward life (r = .45, .65) and the future (r = .54) (Reker, 1977; Reker & Cousins, 1979); emotional stability (r = .43) and responsibility (r = .39) (Crumbaugh & Maholick, 1964). The scale was negatively correlated with depression (r = -.55 to -.79) (Harlow, Newcomb, & Bentler, 1986); anxiety (r = -.37 to -.60); and anomie (r = -.32 to -.51) (Crumbaugh & Maholick, 1964).

The high relationships with measures of depression raised the question of whether the PIL may be simply an indirect measure of depression. Researchers in the area have proposed, however, that lack of purpose is a more generic term than depression (Crumbaugh & Maholick, 1964; Harlow et al., 1986).

Further support for the scale's validity has been based on studies of its discriminative power and the relationship between PIL levels and certain behavior tendencies. Crumbaugh and Maholick (1964) reported that groups expected to have higher levels of life meaning received higher PIL scores. Their sample of successful business or professional personnel had the highest PIL scores, followed by active and leading Protestant parishioners, college undergraduates, non-psychiatric hospital patients, and combined psychiatric groups. Not only has the PIL been found to discriminate between non-psychiatric and psychiatric populations, but also scores among psychiatric groups have been found to correspond with the predicted descending order from the least to the most seriously ill (Crumbaugh, 1968).

A negative relationship has been found between substance involvement and purpose in life. Drug involvement was found to be significantly greater among students with low purpose in life than among those with high purpose in life (Padelford, 1974). Thauberger and Cleland (1981) found that individuals with low PIL scores reported more drug use, poorer physical and dental health, and more absenteeism from work than individuals with high PIL scores. A 10-year follow-up study of male alcoholics revealed that high alcohol consumption was associated with poor mental health, poor social adjustment, a high level of arrests and low PIL scores at follow-up (Taylor, 1986).

Alcoholics typically show comparatively low PIL scores (Crumbaugh & Maholick, 1964). Moreover, scores of alcoholic women have been found generally to be lower than the scores of alcoholic men (Jacobson, Ritter, & Mueller, 1977; Schlesinger, Susman, & Koeningsberg, 1990). Harlow et al. (1986) suggested that men and women react differently to feelings of meaninglessness. They found that women with low purpose in life were significantly more likely to have substance abuse problems, and concluded that purpose in life may be a more important mediator of subsequent substance abuse in women than in men.

Ability to Measure Change: Logoanalysis is a method of therapy designed to help individuals increase their feelings of life-meaning. Studies have found the PIL to be sensitive to logotherapy treatment effects especially in alcoholic populations. Crumbaugh (1972) administered the PIL to 81 inpatient alcoholics before and after treatment. Thirty of the patients were selected to participate in logoanalysis in addition to the regular alcoholism treatment. The alcoholics that received logotherapy showed more of an increase in their PIL scores than those who received the alcoholism treatment alone. Crumbaugh and Carr (1979) reported the same findings in a similar study comparing the effects of logotherapy on closed-ended and open-ended patient groups. Similarly, Jacobson, Ritter, and Mueller (1977) reported significant increases in PIL scores among male and female alcoholics following traditional alcoholism treatment. These data suggest that life meaning can be increased by addictions treatment and that the PIL can measure that change.

Other Forms: Altered versions of the PIL have been developed for research purposes. They include smaller samples of the 20 items, simplified wording of the two extreme points, and dichotomous choice items. A Spanish version of the PIL has also been published by Psychometric Affiliates.

Availability: The PIL cannot be reproduced due to copyright restrictions. Copies of the test and scoring procedures can be purchased from Psychometric Affiliates, Murfreesboro, TN, (615)898-2565. For readers interested in seeing the items that comprise the test, it has been reproduced in Garfield (1973) and in Robinson and Shaver (1973).

PIL. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average PIL score	
Crumbaugh (1968)	Business & professional personnel	*	214	16	230	118.9	
	Leading Protestant parishioners	*	63	79	142	114.3	
	College undergraduates	*	165	252	417	108.5	
	Indigent hospital patients (non-psychiatric)	*	4	12	16	106.4	
	Outpatient neurotics	*	95	124	225[a]	93.3	
	Hospitalized neurotics	*	6	7	13	95.3	
	Hospitalized alcoholics	*	24	14	38	85.4	
	Hospitalized schizophrenics	*	17	24	41	96.7	
	Hospitalized schizophrenics (black)	*	7	4	11	108.0	
	Hospitalized psychotics	*	7	11	18	80.5	
Crumbaugh & Carr (1979)	Pre-therapy PIL scores ≥93					Pre-	Post -
	- open-ended group	*	*	*	25	108.3	111.2
	- closed-ended group	*	*	*	25	110.0	118.6
	- control group	*	*	*	25	107.1	110.1
	Pre-therapy PIL scores ≤92						
	- open-ended group	*	*	*	25	75.7	95.3
	- closed-ended group	*	*	*	25	73.7	101.8
	- control group	*	*	*	25	69.0	84.1
Crumbaugh & Maholick (1964)	Harvard graduate students	17-50	14	0	14	122.9	
			0	16	16	126.5	
	Undergraduate college students	17-50	44	0	44	116.1	
			0	31	31	117.8	
	Psychiatric outpatients	17-50	25	0	25	98.2	
			0	24	24	105.5	
	Psychiatric outpatients	17-50	22	0	22	100.4	
			0	28	28	102.0	
	Hospitalized alcoholics	17-50	14	0	14	87.5	
			0	7	7	93.7	

Study	Sample Type	Age	Males	Females	Total N	Average PIL score	
Garfield (1973)	Ghetto residents	17-25	*	*	40	85.7	
	Professional engineers	23-33	*	*	42	94.3	
	Psychology graduate students	22-28	*	*	50	102.9	
	Commune inhabitants	19-28	*	*	42	113.4	
	Religion graduate students	21-30	*	*	48	119.3	
Harlow et al. (1986)	Young adults	21.9	211	511	722	*	
Jacobson et al. (1977)						Pre-	Post-
	Alcoholics attending inpatient treatment	41.0	49	0	49	96.1	105.0
			0	8	8	91.2	108.2
Padelford (1974)	Anglo-American students	15-17	111	0	111	98.8	
			0	116	116	105.5	
	Mexican-American students	15-17	51	0	51	95.6	
			0	58	58	95.6	
	Other minorities	15-17	36	0	36	99.6	
			0	36	36	95.0	
Reker (1977)	Prison inmates	24.2	48	0	48	102.5	
Reker & Cousins (1979)	College students	19.4	59	0	59	103.4	
			0	189	189	106.2	
Schlesinger et al. (1990)	Non-alcoholics	20+	0	30	30	112.0	
			30	0	30	108.3	
	Alcoholics	20+	30	0	30	98.3	
			0	30	30	85.5	
Taylor et al. (1986)	High dependent alcoholics:					Pre-	Post-
	- good outcome	*	11	0	11	*	111
	- bad outcome	*	6	0	6	*	66
	Low dependent alcoholics:						
	- good outcome	*	12	0	12	*	116
	- medium outcome	*	12	0	12	*	92
	- bad outcome	*	15	0	15	*	68

Note. * indicates no values reported.

[a] Includes 6 respondents who did not indicate their sex.

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Measure: Symptom Checklist-90 (SCL-90)

The Symptom Checklist-90 is a 90-item symptom inventory designed to measure current psychological symptom patterns. It is a reliable and valid instrument, suitable for use as an outcome measure of psychological distress in substance abuse populations. The SCL-90 has been used with a broad range of clinical and nonclinical groups as well as male and female adolescent and elderly populations. No published reports were found validating the SCL-90 for use with particular cultural groups.

Detailed Review of the Symptom Checklist-90 (SCL-90)

Original Publication:

Derogatis, L.R. (1977). *SCL-90: Administration, scoring and procedures manual-I for the revised version.* Baltimore: Clinical Psychometrics Research.

Principal Author: Leonard R. Derogatis, Ph.D.

Description: The SCL-90 is a 90-item multidimensional self-report inventory designed to measure psychological distress. Subtests include somatization, obsessive-compulsiveness, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. Three global indices provide an assessment of the intensity of perceived distress (Global Severity Index-GSI), the number of symptoms experienced (Positive Symptom Total - PST), and a summary measure combining intensity and number of symptoms (Positive Symptom Distress Index-PSDI). Respondents indicate on a scale of 0 (not at all) to 4 (extremely) how much each problem has bothered them in the past week.

Target Populations: The scale has been used with adolescents, the elderly, nonclinical, and a variety of clinical populations.

Administration: The SCL-90 requires 10 to 20 minutes to complete.

Scoring and Interpretation: GSI scores range from 0-4, PST scores range from 0-90, and PSDI scores range from 0-360.

Reliability and Validity of the Scale

***Reliability*:** Coefficient *alphas* ranging from .77 to .90 have been reported for the nine primary symptom dimensions (Derogatis, Rickels, & Rock, 1976). An overall mean *alpha* value of .95 has been computed for the scale over three repeated testings (Edwards, Yarvis, Mueller, Zingale, & Wagman, 1978). Test-retest reliability coefficients for the nine dimensions range from $r = .78$ to $r = .90$ over a one-week interval (Derogatis, 1977) and from $r = .55$ to $r = .94$ over a 2-week interval (Edwards et al., 1978).

Validity: Research provides substantial evidence of the SCL-90's validity. Correlations of the scale's symptom dimensions with measures of similar constructs range from $r = .36$ to $r = .75$. The GSI of the SCL-90 correlates $r = .92$ with global scores on the Middlesex Hospital Questionnaire (Derogatis, 1977; Derogatis, et al., 1976).

The SCL-90 has been shown to discriminate between clinical groups and between clinical and nonclinical populations. When compared with controls or nonpatients, higher SCL-90 scores have been reported by burn patients (Blank & Perry, 1984), head injury patients (Sbordone, Kral, Gerard, & Katz, 1984), and clients on methadone maintenance programs (Jacobs, Doft, & Koser, 1981). The scale has been found to discriminate among patients with different types of chronic pain (Pelz & Mersky, 1982), among heroin addicts seeking different types of treatment (Steer, 1982), between women with breast cancer and women with other forms of cancer (Abeloff & Derogatis, 1977), among depressed and nondepressed methadone users and alcoholics (Derogatis, 1981), and among substance users with problems of differing severity (Pandina, White, & York, 1981; Royse & Drude, 1984).

Factor analysis of data over 1,000 psychiatric outpatients supported the factorial structure of the test (Derogatis & Clearly, 1977). A good match was shown between empirical findings and the hypothesized symptom structure in eight of the nine areas measured by the SCL-90. More recently, however, Brophy, Norvell and Kiluk (1988) examined the factor structure of the scale and found only six stable factors and suggested that the instrument is best used as a general measure of psychopathology or emotional discomfort.

Ability to Measure Change: The SCL-90 has been shown to be sensitive to treatment effects in various groups including depressives, schizophrenics, and chronic pain patients. Studies with substance abuse populations have shown the test to be a useful outcome measure for addiction treatment programs (Rounsaville, Weissman, Crits-Christoph, Wilbur, & Kleber, 1982; Verinis, Wetzel, Vanderporten, & Lewis, 1986; Weiss, Mirin, Griffin, & Michael, 1988).

Other Forms: There is a short form of the instrument (Brief Symptom Inventory), as well as parallel rating scales to be used by expert clinicians (Hopkins Psychiatric Rating Scales) and by less expert clinical observers (SCL-90 Analog).

Availability: The SCL-90 cannot be reproduced due to copyright restrictions. Clinical Psychometric Research Inc. (P.O. Box 619 Riderwood, Maryland 21139, (301) 245-0277) distributes tests and materials only to qualified professional users in accordance with the standards of the American Psychological Association. Those wishing to purchase copies of the test must include the name of a qualified individual who will take responsibility for the appropriate use of the materials ordered.

SCL-90. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average SCL-90 Scores			
Derogatis (1977)						GSI	PSDI	PST	
	Psychiatric outpatients	31.0	425	577	1002	1.26	2.14	50.17	
	Normative sample	46.0	494	480	974	.31	1.32	19.29	
	Adolescent psychiatric outpatients	12-19	63	49	112	.89	1.80	40.45	
Pandina et al. (1981)							GSI		
	Substance involvement groups:	12-18	858	1095	1960[a]	Males		Females	
	- abstainers		*	*	120	.38		.59	
	- stoppers		*	*	307	.47		.67	
	- low users		*	*	318	.45		.71	
	- moderate users		*	*	704	.50		.85	
	- high users		*	*	308	.57		.99	
	- very high users		*	*	203	.61		1.18	
Rounsaville & Weissman (1982)							GSI		
						Pre-		6-mo. FU	
	Opiate addicts	*	93	30	123	.99		.68	
Royse & Drude (1984)	Drug treatment patients:	21.0	200	100	300		GSI		
	- no use		*	*	110		.62		
	- < once a week		*	*	30		.61		
	- once a week		*	*	27		.68		
	- several times/week		*	*	57		.78		
	- 1-3 times daily		*	*	38		.82		
	- > 3 times daily		*	*	38		1.24		
Verinis et al. (1986)[b]	Male alcoholics admitted to a 28-day inpatient alcohol treatment program	42	57	0	57		BSI		
						Wk 1	Wk 2	Wk 3	Wk 4
						43.8	28.3	22.2	18.4

Note. * indicates no reported values. GSI-Global Severity Index; PSDI-Positive Symptom Distress Index; PST-Positive Symptom Total; BSI-Brief Symptom Inventory.

[a] Includes 7 respondents who did not report their sex.

[b] Mean raw scores of 53 items.

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Measure: Profile of Mood States (POMS)

The Profile of Mood States is a brief measure of mood and feeling states. The reliability and validity of the scale are well-established and it is appropriate for a wide range of clinical and nonclinical populations. It has been used extensively with both male and female adolescent, adult and elderly populations. No published studies were found validating the POMS for use with particular cultural groups.

Detailed Review of the Profile of Mood States (POMS)

Original Publication:

McNair, D.M., Lorr, M. & Droppleman, L.F. (1971). *Profile of Mood States Manual.* San Diego: Educational and Industrial Testing Service.

Principal Author:

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Description: The Profile of Mood States (POMS) consists of 65 self-rating adjective scales that assess transient affective states. Respondents rate their mood states "during the past week including today" on a 5-point scale that ranges from "not-at-all" (0) to "extremely" (4). Items are summed into six mood scores: tension-anxiety (T), depression-dejection (D), anger-hostility (A), vigor-activity (V), fatigue-inertia (F), and confusion-bewilderment (C).

Target Populations: The POMS has been used with a variety of populations including adolescents, the elderly, psychiatric and substance abuse populations.

Administration: The POMS is a self-report measure that takes 5-10 minutes to complete.

Scoring and Interpretation: Each of the six mood scores is derived from the sum of the ratings. The V scale is reverse scored. T scores range from 0-36 (9 items); D scores range from 0-60 (15 items); A scores range from 0-48 (12 items); V scores range from 0-32 (8 items); F scores range from 0-28 (7 items); and C scores range from 0-28 (7 items). Seven items are not included in any of the subscale scores.

Reliability and Validity of the Scale

Reliability: The POMS has shown good internal consistency (Kuder-Richardson 20 coefficients ranging from .84 to .95) in samples of male and female psychiatric outpatients, (McNair, Lorr, & Droppleman, 1971). The same study found test-retest correlations ranging from $r = .65$ to $r = .74$ for the six factors over a period of 20 days (McNair et al., 1971).

Validity: Information supporting the validity of the POMS comes primarily from factorial studies, correlations with other mood scales, and score changes that result from experimentally induced conditions. One criticism regarding the content of the POMS is that it emphasizes negative moods and under-represents positive affect. However, a newer version of the POMS has been developed which assesses bipolar mood states (Lorr, McNair & Fisher, 1982).

Six independent factor analyses of large samples of psychiatric patients and college students identified the same six mood factors. These factors were replicated regardless of the sample group or rating period used (McNair et al., 1971). Significant correlations ranging from .18 to .86 have been obtained between the POMS and a variety of other scales measuring different comparable emotional states such as somatization, anxiety, depression and motivation (McNair et al., 1971).

The validity of the test is further indicated by its sensitivity to emotion-inducing conditions. Anxiety and depression-inducing films have been shown to significantly increase POMS Tension and Depression ratings, respectively (Kochansky, 1973; McNair et al., 1971).

There is some indication that females tend to have higher levels than males on the Tension, Depression, and Confusion scales (McNair et al., 1971). Studies also suggest that older populations are more positive than younger adults on all the symptom scales except Vigor (Kaye et al., 1988; Usala & Hertzog, 1989). A complete table of demographic correlates is presented in the POMS manual (McNair et al., 1971).

Ability to Measure Change: Several studies have found that the POMS that is a sensitive indicator of changes in mood that result from addictions treatment and other therapies (Havassy & Tschann, 1984; Lorr, Lorr, & Devlin, 1990; McNair et al., 1971; Miller & Taylor, 1980; Sorenson, Hargreaves, & Weinberg, 1982).

Other Forms: A new form of the POMS to assess bipolar mood states is also available (Lorr et al., 1982).

Availability: Copyright restrictions prevent reproduction of the POMS. Copies of the instrument and related materials can be purchased from EdITS/Educational and Industrial Testing Service, San Diego, California.

POMS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average POMS score[a]						
							T	D	A	V	F	C
Havassy & Tschann (1984)[b]	Heroin addicts: - increased methadone condition	33.0	31	23	54	Baseline	17.0	20.0	17.0	13.0	12.0	11.0
			*	*	29	7-10 wks.	11.0	12.0	9.0	11.0	7.0	9.0
	- no modification of methadone dosage condition		*	*	25	Baseline	9.0	9.0	5.0	12.0	5.0	7.0
						7-10 wks.	8.0	8.0	8.0	9.0	7.0	7.0
Kaye et al. (1988)	Older subjects	65+	136	369	505		7.7	8.0	3.9	18.9	6.7	5.9
	College students	*	*	*	*		13.5	14.1	9.6	15.6	10.6	11.1
	Psychiatric outpatients	*	*	*	*		19.9	26.0	14.4	10.0	12.0	13.0
Lorefice et al. (1976)	Male alcoholics	32.7	25	0	25		16.7	17.0	11.6	14.7	8.4	9.6
	Male narcotic addicts	29.2	25	0	25		12.4	12.5	10.2	14.3	8.7	7.6
Miller & Taylor (1980)	Problem drinkers receiving behavioral self-control treatment	45.4	25	16	41	Intake	13.0	10.8	11.1	15.7	9.1	7.7
						Termination	7.7	6.1	6.4	21.1	5.8	4.4
						3-mo. FU	6.8	5.4	6.3	20.7	5.3	3.9
						12-mo. FU	7.5	4.5	6.8	21.5	5.9	3.6

Note. * indicates no values reported. Additional test norms based on standardization samples are available in the POMS manual for male and female psychiatric outpatients and college students (Lorr, McNair & Fisher, 1982).

[a] Low scores represent more positive mood states with the V scale reverse-scored: T (Tension-Anxiety), D (Depression-Dejection), A (Anger-Hostility), V (Vigor-Activity), F (Fatigue-Inertia), C (Confusion-Bewilderment).

[b] A quasi-experimental design comparing subjects from two separate treatment programs; average POMS scores were estimated from Havassy and Tschann (1984), Figure 1.

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Measure: Beck Depression Inventory (BDI)

The Beck Depression Inventory is one of the most widely used measures of depression. Psychometric evaluation of the scale with a number of clinical and nonclinical groups shows it to be brief, reliable and valid. The scale is suitable for use with male and female adolescent, adult and elderly populations. No published studies were found validating the BDI for use with particular cultural groups.

Detailed Review of the Beck Depression Inventory (BDI)

Original Publication:

Beck, A.T., Ward, C.H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. *Archives of General Psychiatry, 4*, 561-571.

Principal Author: Aaron T. Beck, Ph.D.
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Description: The Beck Depression Inventory has become one of the most widely used instruments for the assessment and detection of depression. It was developed from clinical observations of the symptoms frequently displayed by depressed psychiatric patients as compared to nondepressed psychiatric patients. The test was originally standardized on 598 inpatients and outpatients in a psychiatric hospital, but has since been applied to a variety of other psychiatric and non-psychiatric populations.

The BDI covers 21 clinical symptoms of depression. Eleven of the 21 items refer to cognitive symptoms of depression, while the remaining 10 items cover affective (2), behavioral (2), somatic (5) and interpersonal (1) aspects of depression (Rehm, 1988). Each item on the BDI consists of a series of four statements scaled to indicate increasing depressive symptomatology. Respondents indicate which statement best describes how they have been feeling over the past week.

There is some controversy and confusion surrounding the utility and meaning of the different cutoff scores applied by different researchers to define clinical depression. It is recommended that the BDI be used to measure extent of depressed feelings and that labels of clinical depression not be applied without concurrent information from structured clinical interviews.

Target Populations: The BDI is applicable to clinical and non-clinical populations.

Administration: The BDI was originally designed for use as a clinical rating scale, but is most frequently used as self-report instrument. It takes 5-10 minutes to complete.

Scoring and Interpretation: The BDI is scored by summing the ratings of the 21 items. Total scores can range from 0 to 63. Generally, higher scores reflect greater severity of depression. Variations in the cutting scores used in research with the BDI make it difficult to make precise recommendations concerning interpretation of the scores. Kendall, Hollon, Beck, Hammen, and Ingram (1987) suggest that the term depression should be reserved for individuals scoring over 20 and preferably with concurrent diagnosis by structured clinical interview.

Reliability and Validity of the Scale

Reliability: The internal consistency of the BDI has been evaluated using a number of different sample groups. The coefficient *alpha* value with a sample of 101 male alcoholics was .95 (Steer, McElroy, & Beck, 1982). Alpha values ranging from .76 to .95 have been found in psychiatric samples and from .73 to .92 in non-psychiatric samples (Beck, Steer, & Garbin, 1988). The stability of the BDI has also been tested extensively. A one-month test-retest reliability value of $r = .82$ has been reported with a group of 27 inpatient alcoholics (Moffett & Radenhausen, 1990). With intervals ranging from weeks to hours, test-retest correlations range from $r = .48$ to $r = .86$ with psychiatric patients and from $r = .60$ to $r = .83$ with non-psychiatric subjects (Beck et al., 1988).

Validity: The content of the BDI is a good reflection of the construct of depression. The BDI shares eight of the nine criteria for depression assessed by the DSM-III (Moran & Lambert, 1983). The inclusion of five somatic items could be cause for concern in using the BDI with substance abusers since physical symptoms are relatively common among alcohol and drug abusers and might not necessarily indicate depression. However, studies suggest that there appear to be core criteria (especially items measuring cognitive distortion) for depressive severity measured by the BDI that are not confounded by physical illness or the effects of chronic alcoholism (Clarke, Gibbons, Fawcett, Aagesen, & Sellers, 1985; Steer et al., 1982).

Correlations between clinical ratings of depression and BDI scores have been observed ranging from $r = .55$ to $r = .96$ for psychiatric samples and from $r = .55$ to $r = .73$ for non-psychiatric samples (Beck et al., 1988). High correlations between the BDI and other depression scales have also been reported. In substance abuse studies specifically, the BDI has been found to correlate positively with a number of depression measures including the Hamilton Psychiatric Rating Scale, the MMPI depression scale, the Zung-Self-Reported Depression Scale, and the SCL-90R depression subscale (Hesselbrock, Hesselbrock, Tennen, Meyer, & Workman, 1983; Moffett & Radenhausen, 1990; Reynolds & Gould, 1981; Rounsaville, Weissman, Rosenberger, Wilber, & Kleber 1979; Schaefer et al., 1985; Steer, McElroy, & Beck, 1983).

Relationships between scores on the BDI and related measures provide additional evidence for the validity of the BDI. BDI scores have been positively related to anxiety, suicidal ideation and behavior, marital problems, stress, and loneliness. Biological evidence for the validity of the BDI in clinical samples is also available. Akiskal, Lemmi, Yerevanian, King, and Belluomini (1982) found that the BDI is inversely related to REM latency (an indicator of sleep difficulty), and Brooksbank and Coppen (1967) found that depressed patients who had higher levels of a plasma steroid (known to be a biological correlate of depression) also had higher scores on the BDI (r = .56).

The scale has been shown to discriminate among different populations including depressed patients, alcoholic patients, and non-clinical subjects (Conde & Esteban, 1976, cited in Beck et al., 1988), psychiatric from non-clinical subjects (Akiskal et al., 1982), and depressed from nondepressed alcoholics (Clarke et al., 1985; Dorus, Kennedy, Gibbons, & Ravi, 1987; Steer et al., 1983).

The scale also appears to have some predictive validity for abusers of drugs other than alcohol. Rounsaville, Weissman, Crits-Christoph, Wilber, & Kleber (1982) reported that opiate addicts who received more treatment were less symptomatic as measured by the BDI. They also found that subjects who were in bad standing or who terminated or left programs tended to have higher scores on the BDI at a 6-month follow-up. In addition, higher initial symptom levels measured on the BDI were associated with higher symptom levels at outcome.

Ability to Measure Change: The BDI is capable of reflecting improvement due to treatment intervention, often more effectively than other depression measures (Moran & Lambert, 1983). It was reported to have the best combination of sensitivity and specificity of several rating scales in detecting major depression in cocaine abusers (Weiss, Griffin, & Mirin, 1989) and opiate addicts (Rounsaville et al., 1979). A study of 157 opiate addicts demonstrated significant improvements in all self-reported symptom areas of the BDI after six months of treatment (Rounsaville et al., 1982). Significant decreases in depression scores following treatment for alcoholism are common (Willenbring, 1986; Mirin, Weiss, Sollogub, & Michael, 1984). Dorus et al. (1987) examined depressive symptoms in a group of 50 alcoholic males during active drinking, withdrawal (four days after their last drink), and abstinence (24 days after their last drink). Depression symptoms decreased significantly as the patients progressed from active drinking to abstinence.

Other Forms: A computerized version of the BDI is available, but no published results of its validity were found. Short forms of the BDI are also available but are not recommended for use (Reynolds & Gould, 1981). The short forms show significant correlations with the long form but the percentage of accurate classifications using the short forms is much lower than with the original.

Availability: Reproduction of the scale is not permitted. Copies can be purchased from the Psychological Corporation, 555 Academic Court, San Antonio, Texas, 78204, (512) 299-1061. Readers who would like to examine items included on the inventory can refer to Corcoran and Fischer (1987).

BDI. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average BDI Score		
Akiskal et al. (1982)	Psychiatric patients	42.6	4	9	13		10.0	
	Control group	32.6	4	14	18		1.8	
Beck et al. (1961)	Psychiatric patients							
	- original study group	*	92	134	226		*	
	- replication group	*	68	115	183		*	
Dorus et al. (1987)	Veterans receiving inpatient treatment for alcoholism	45.0	50	0	50	Day 1 (Active drinking)	Day 4 (Withdrawal)	Day 24 (Abstinence)
	- current major depression		7	0	7	30.6	23.0	14.7
	- lifetime major depression		9	0	9	24.5	23.2	14.2
	- no depression		34	0	34	17.2	11.9	5.1
Mirin et al. (1984)	Alcoholics:	21-61	*	*	150	Intake	Wk 2	Wk 4
	- depressed		*	*	*	22.1	12.4	9.8
	- non-depressed		*	*	*	16.6	9.6	3.9
Moffet & Radenhausen (1990)	Inpatient substance abusers	23-58	32	0	32		14.6	
	Outpatient substance abusers	17-43	15	7	22		9.9	
Rounsaville et al. (1982)	Opiate addicts	*	119	38	157		Pre- 10.0	6-mo. FU 6.1
Steer et al. (1982)	Male alcoholics admitted to community treatment	36.9	101	0	101		12.8	
Weiss et al. (1989)	Cocaine abusers	20-52	110	39	149	Pre- 16.5	Wk 2 8.6	Wk 4 5.7
Willenbring (1986)	Male alcoholics	41.2	51	0	51		Day 1 9.3	Day 21 4.7

Note. * indicates no values reported.

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Measure: Center for Epidemiologic Studies - Depression Scale (CES-D)

The CES-D is a brief questionnaire that assesses the frequency and duration of the symptoms associated with depression. Studies with alcohol and drug abusers have shown the scale to be a reliable and valid measure of depressed feelings in these groups and suitable for measuring improvement in depression following treatment. It has been used with both males and females in general population surveys and in various clinical samples, including alcohol and drug abusers. The CES-D has been adapted for use with children. The scale has also been validated for use with adolescents, the elderly, and a number of different ethnic groups.

CES-Depression Scale

INSTRUCTIONS: Using the scale below, please circle the number before each statement which best describes how often you felt or behaved this way DURING THE PAST WEEK.

1 = Rarely or none of the time (less than 1 day)
2 = Some or a little of the time (1-2 days)
3 = Occasionally or a moderate amount of time (3-4 days)
4 = Most or all of the time (5-7 days)

DURING THE PAST WEEK:

1	2	3	4	I was bothered by things that usually don't bother me.
1	2	3	4	I did not feel like eating; my appetite was poor.
1	2	3	4	I felt that I could not shake off the blues even with help from my family or friends.
1	2	3	4	I felt that I was just as good as other people.
1	2	3	4	I had trouble keeping my mind on what I was doing.
1	2	3	4	I felt depressed.
1	2	3	4	I felt that everything I did was an effort.
1	2	3	4	I felt hopeful about the future.
1	2	3	4	I thought my life had been a failure.
1	2	3	4	I felt fearful.
1	2	3	4	My sleep was restless.
1	2	3	4	I was happy.
1	2	3	4	I talked less than usual.
1	2	3	4	I felt lonely.
1	2	3	4	People were unfriendly.
1	2	3	4	I enjoyed life.
1	2	3	4	I had crying spells.
1	2	3	4	I felt sad.
1	2	3	4	I felt that people dislike me.
1	2	3	4	I could not get "going."

Scoring: Items are summed after reverse scoring items 4, 8, 12, and 16. Total CES-D scores range from 0-60, with higher scores reflecting higher levels of depression.

Detailed Review of Center for Epidemiologic Studies - Depression Scale (CES-D)

Original Publication:

Radloff, L.S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurement, 1*, 385-401.

Principal Author:

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Description: The CES-D is a 20-item scale originally designed to measure depression in the general population. It also has been shown to be useful in clinical and psychiatric settings. The scale is not intended for diagnostic purposes, but rather as a state measure of current feelings of general depression. It provides an index of the cognitive, affective and behavioral features of depression and the frequency with which these symptoms occur.

Radloff (1977) identified the major components of depression as being depressed mood, feelings of guilt and worthlessness, feelings of helplessness and hopelessness, psychomotor retardation, loss of appetite, and sleep disturbance. Items representing each component were selected from previously validated depression scales and from factor analytic studies. Respondents indicate how often they have experienced each of the symptoms during the preceding week using a 4-point response scale where 0 = "rarely or none of the time" and 3 = "most or all of the time". The CES-D is not appropriate for use as a screening tool for identifying clinical depression or for identifying subtypes of depression described in such diagnostic classification systems as the DSM-III-R. Regardless of the score a person might obtain on the CES-D, clinical assessment by a qualified person is required to diagnose depression.

Target Populations: The CES-D is applicable to general and clinical populations.

Administration: The CES-D was designed as a self-report measure, but can also be administered as an interview. It takes less than 5 minutes to complete the CES-D.

Reliability and Validity of the Scale

Reliability: The CES-D has good internal consistency. Radloff (1977) found an average coefficient *alpha* of .85 and a split-half reliability correlation of r = .87 across several samples. Studies of alcohol abusers have reported *alpha* levels ranging from .85 to .90 (Caetano, 1987; Neff, 1986; Susser, Struening, & Conover, 1989).

Radloff (1977) reported test-retest correlations of r = .45 to r = .70 for repeated administrations of the CES-D over intervals ranging from a couple of weeks to several months. Higher estimates of test-retest reliability occurred over shorter time periods and were found to characterize respondents having experienced no major life events.

Validity: Item content of the CES-D reflects the major components of depression outlined by Radloff (1977). The exclusion of many somatic features characteristic of depression is an advantage when using this scale for substance abusing populations, since such physical symptoms can also be attributed to the effects of prolonged substance abuse.

In the community samples on which the measure was originally tested, the CES-D was found to be positively correlated (r ranging from .43 to .72) with measures of general psychological functioning, mood scales and other depression scales (Radloff, 1977). Correlations with interviewer ratings of depression ranged from r = .38 to .74. Weissman, Sholomskas, Pottenger, Prusoff, and Locke (1977) found that the CES-D correlated positively with clinician ratings of depression and with a symptom self-report scale (SCL-90) in five psychiatric samples (12 of 15 possible correlations were greater than r = .60). In the same study, CES-D total scores and SCL-90 depression subscale scores were highly correlated at r = .79 and .89, in drug addict and alcoholic subsamples respectively. Furthermore, the CES-D was able to discriminate depressed alcoholics from nondepressed alcoholics using Raskin Depression scores as criteria.

Negative relationships have been found between levels of depression measured using the CES-D and measures of perceived personal control and sense of accomplishment (Lin & Ensel, 1984). Radloff (1977) found that CES-D scores significantly discriminated between people who stated they felt they needed help for an emotional problem and those who did not need help. Radloff (1977) also found CES-D depression scores to be negatively correlated with scores on Bradburn's Positive Affect scale. Weissman et al. (1977) found low correlations of the CES-D with such variables as age, sex, and social class among five psychiatric samples, indicating that the CES-D measures depression independent of these variables.

Ability to Measure Change: Weissman (1977) observed significant improvements in CES-D total scores from pre- to post-treatment among a sample of psychiatric outpatients receiving treatment for depression. Similarly, Weissman, Prusoff, & Newberry (1975) reported significant improvements in CES-D scores for a group of acutely depressed patients following one and four weeks of treatment with psychotropic medication.

Other Forms: The CES-D has been adapted for use with children (Weissman, Orvaschel, & Padian, 1980) and has been translated into a number of foreign languages (e.g., Caetano, 1987; also communication from Radloff, 1992).

Availability: The original CES-D is in the public domain.

CES-D. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average CES-D score	
Lin & Ensel (1984)	General population	18-70	427	444	871	8.5	
Murrell et al. (1983)	Elderly males	55+	962	0	962	9.4	
	Elderly females	55+	0	1555	1555	10.6	
Neff (1986)		25-75	*	*	3854	Drinkers	Abstainers
	Anglos		45-50%	50-55%	*	10.1	9.2
	Blacks		45-50%	50-55%	*	11.5	8.5
	Acculturated hispanics		45-50%	50-55%	*	9.9	20.8
	Less acculturated hispanics		60%	40%	*	10.6	15.9
Radloff (1977)	Survey sample 1	*	*	*	2514	9.2	
	Survey sample 2	*	*	*	1060	8.2	
	Survey sample 3	*	*	*	1422	7.9	
	Psychiatric patients	*	*	*	70	24.4	
Radloff (1991)	Junior high school students	12-15	*	*	355	16.6	
	High school students	15-18	*	*	282	17.9	
Susser et al. (1989)	Homeless men	17-50+	223	0	223	*	
Weissman et al. (1975)	Psychiatric patients	*	*	*	35	Intake	39.1
						1-wk. treatment	29.3
						4-wk. treatment	20.9
Weissman et al. (1977)	Alcoholics	18-64	36	25	61	23.0	
	Drug addicts	18-64	47	13	60	17.0	
	General population	18-64	1614	2318	3932	9.1	
	Acute depressive	18-64	28	120	148	38.1	
	Recovered depressive	18-64	19	68	87	14.8	
	Schizophrenic	18-64	13	37	50	13.0	

Note. * indicates no values reported.

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Measure: State-Trait Anxiety Inventory (STAI)

The State-Trait Anxiety Inventory is one of the most widely used measures of anxiety. The State-Anxiety scale of the STAI is a brief, reliable and valid measure of situational or transitory anxiety. This subscale has been used repeatedly in outcome studies and has demonstrated good responsivity to the fluctuations and intensity changes in anxiety that may result from addictions treatment. The State-Anxiety scale has been used with male and female adolescent, elderly, and clinical and non-clinical populations. Studies on the use of the STAI with specific cultural groups were not located; however, the measure has been translated into a number of languages.

Detailed Review of the State-Trait Anxiety Inventory (STAI)

Original Publication:

Spielberger, C.D., Gorsuch, R.L., & Lushene, R.E. (1970). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press.

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Description: The State-Trait Anxiety Inventory (STAI) is a 40-item measure of two distinct but related anxiety concepts. The Trait Anxiety (T-Anxiety) scale consists of 20 statements that ask about general feelings and assess relatively stable differences in anxiety proneness. State Anxiety (S-Anxiety) refers to a transitory, emotional state characterized by feelings of tension and apprehension which fluctuate and vary in intensity. The 20 items of the S-Anxiety scale rate the intensity of anxious feelings at a particular moment on a 4-point scale (from "not at all" to "very much so"). The S-Anxiety scale is a sensitive indicator of transitory anxiety and is the most appropriate to measure change in intensity of anxiety resulting from therapy (Spielberger, Gorsuch, & Lushene, 1970). There are two forms of the STAI (Form X and Form Y). In the revised STAI (Form Y), 12 of the 40 Form X items were replaced, resulting in improved psychometric properties and factor structure and a purer measure of anxiety.

Target Populations: The scale has been widely used with general and clinical populations.

Administration: The STAI is a self-report measure that can be completed in less than 5 minutes.

Scoring and Interpretation: Ratings are summed to obtain the state anxiety score. Scores range from 20 to 80 with higher scores indicating more anxiety.

Reliability and Validity of the Scale

The two forms (Form X and Form Y) of the STAI are highly correlated ($r = .95$) for both males and females. The psychometric properties reported here are those of the original Form X. The procedures for item selection, standardization, and validation of the STAI (Form Y) are described in the revised Test Manual (Spielberger, 1983).

Reliability: *Alpha* reliability coefficients range from .83 to .94 for the S-Anxiety scale. Test-retest correlations range from $r = .16$ to $r = .62$. Low levels of stability for S-Anxiety are expected for a measure designed to be influenced by situational factors (Spielberger et al., 1970).

Validity: Factor analyses of the entire 40 items resulted in the 20 S-Anxiety items loading most highly on one factor and the 20 T-anxiety items loading most highly on another factor (Spielberger et al., 1970).

Correlations between the T-Anxiety and the S-Anxiety scale of the STAI vary between $r = .44$ and $r = .55$ with females, and between $r = .51$ and $r = .67$ with males. The S-Anxiety scale correlates $r = .47$ with the Multiple Affect Adjective Checklist. Both STAI scales correlate highly ($r = .70$) with the Cornell Medical Index suggesting that a high number of medical symptoms is associated with a high anxiety level.

Construct validity of the S-Anxiety scale has been demonstrated in studies in which scores were fluctuated as a function of situational stress. In one study (Spielberger et al., 1970), students were first administered the S-Anxiety scale with standard instructions (NORM condition) and then asked to respond as they would feel just prior to an important final exam (EXAM condition). Mean scores in the EXAM condition were significantly higher for both males and females. In fact, all of the 20 items significantly discriminated between the two conditions for females and all but one discriminated between the conditions for the males.

In a subsequent study (Spielberger et al., 1970), students were administered the S-Anxiety scale under four experimental conditions: 1) at the beginning of the test session (NORM condition); 2) following 10 minutes of relaxation training (RELAX condition); 3) following administration of a relatively easy IQ test (EXAM condition) and; 4) immediately following viewing of a stressful movie (MOVIE condition). The mean scores for both males and females were highest in the stressful (MOVIE and EXAM) conditions and lowest in the relaxation condition.

Clinical groups tend to have an increased incidence of anxiety disorders and substantially higher mean total STAI scores than controls (Brown, Irwin, & Schuckit, 1991; Kilpatrick, McAlhany, McCurdy, Shaw, & Roitzsch, 1982; Spielberger et al., 1970; Thevos, Johnston et al., 1991; Walfish, Massey, & Krone, 1990).

Studies with the elderly indicate that early-onset alcohol abusers have significantly higher total STAI scores than late-onset alcohol abusers (Schonfeld & Dupree, 1991). It has been suggested that an important factor in the development and maintenance of alcohol abuse and dependence for some patients may be the use of alcohol as self-medication for the treatment of their anxiety (Chambless, Cherney, Caputo, & Rheinstein, 1987). Thevos et al.

(1991) reported that the S-Anxiety scale can discriminate between alcoholics with concurrent anxiety disorders (dual-diagnosed alcoholics) and alcoholics without anxiety disorders.

Ability to Measure Change: The S-Anxiety has been used as an outcome measure in several studies and has demonstrated its sensitivity to changes in anxiety that result from treatment. Two studies compared pre- and post-test S-Anxiety scores following various stress reduction techniques. In both reports S-Anxiety scores were significantly reduced following treatment compared to controls (Ormrod & Budd, 1991; Spoth, 1983). Brown et al. (1991) demonstrated that alcoholics experience significantly elevated levels of S-Anxiety at admission to treatment. S-Anxiety scores were significantly reduced after two weeks of treatment and continued to decrease significantly with each week of continued abstinence. Furthermore, relapsers had significantly higher S-Anxiety scores at follow-up than did abstainers. Similarly, Thevos et al. (1991) reported significant reductions in S-Anxiety scores over three weeks of treatment in alcoholics with concurrent anxiety disorders and in alcoholics without anxiety symptoms.

Other Forms: A children's form of the STAI is also available. According to Chaplin (1984), the original STAI has been translated into many foreign languages.

Availability: Copyright restrictions prevent reproduction of the STAI. The test materials can be purchased from Consulting Psychologists Press, 3803 E. Bayshore Rd., Palo Alto, California, 94303, (415) 969-8901.

STAI. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average State Anxiety Score
Brown et al. (1991)	Male alcoholics	22-74	171	0	171	Pre- 39.0
						2-wks. 35.9
						3-wks. 33.6
						4-wks. 32.7
Kilpatrick et al. (1982)	Aging male alcoholics	55+	36	0	36	48.6
	Aging male non-alcoholics	55+	35	0	35	35.7
Ormrod & Budd (1991)[a]	Alcoholics assigned to:	*	*	*	36	Average change scores
	- anxiety management condition		*	*	12	10.2
	- relaxation training condition		*	*	12	4.4
	- health education control condition		*	*	12	-1.1
Schonfeld & Dupree (1991)	Elderly alcoholics:					
	- early onset	65.4	15	8	23	36.6
	- late onset	65.6	15	8	23	27.1
Spielberger et al. (1970)	First year university students	*	334	0	334	40.0
			0	648	648	39.4
	Undergraduates	*	253	0	253	36.3
			0	231	231	35.1
	High school students	*	190	0	190	37.0
			0	187	187	37.6

Study	Sample Type	Age	Males	Females	Total N	Average State Anxiety Score
Spoth (1983)	Male alcoholics receiving:	43.1	55	0	55	
	- external locus of control/ stress reduction treatment		18	0	18	Pre- 50.6 Post- 35.7 8-wk. FU 39.2
	- internal locus of control/ stress reduction treatment		19	0	19	Pre- 52.3 Post- 38.4 8-wk. FU 46.1
	- waiting list control group		18	0	18	Pre- 47.8 Post- 46.1 8-wk. FU 35.4
Thevos et al. (1991)[b]	Male alcoholics receiving alcohol treatment	45.1	16	0	16	Pre- 43.5 1-wk. treatment 38.0 2-wk. treatment 37.0 3-wk. treatment 35.0
	Male alcoholics with anxiety disorder (dual-diagnosed group) receiving alcohol treatment	43.8	17	0	17	Pre- 56.0 1-wk. treatment 47.5 2-wk. treatment 44.0 3-wk. treatment 40.0

Note. * indicates no values reported.

[a] Respondents scoring above the 70th percentile on the total STAI were selected.

[b] Average STAI scores were estimated from Thevos et al. (1991), Figure 1.

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Measure: Rosenberg Self-Esteem Scale (SES)

The Rosenberg Self-Esteem Scale is a 10-item measure of global self-esteem originally developed for use with adolescents. It has demonstrated good reliability and validity across a large number of different sample groups. The SES has been validated for use with substance abusers and other clinical groups, and is regularly used in treatment outcome studies. The scale has been validated for use with both male and female adolescent, adult and elderly populations. It has been used with francophone populations but studies were not found on the use of the SES with other specific cultural groups.

Rosenberg Self-Esteem Scale

INSTRUCTIONS: Please circle the appropriate number for each statement depending on whether you strongly agree, agree, disagree, or strongly disagree with it.

Strongly agree				**Strongly disagree**
1	**2**	**3**	**4**	**5**

1. On the whole, I am satisfied with myself. 1 2 3 4 5
2. At times I think I am no good at all. 1 2 3 4 5
3. I feel that I have a number of good qualities. 1 2 3 4 5
4. I am able to do things as well as most other people. 1 2 3 4 5
5. I feel I do not have much to be proud of. 1 2 3 4 5
6. I certainly feel useless at times. 1 2 3 4 5
7. I feel that I'm a person of worth, at least on an equal plane with others. 1 2 3 4 5
8. I wish I could have more respect for myself. 1 2 3 4 5
9. All in all, I am inclined to feel that I am a failure. 1 2 3 4 5
10. I take a positive attitude toward myself. 1 2 3 4 5

Scoring: Sum the ratings assigned to all the items after reverse scoring the positively worded items. Scores range from 10 to 40, with higher scores indicating higher self-esteem.

Detailed Review of the Rosenberg Self-Esteem Scale (SES)

Original Publication:

Rosenberg, M. (1965). *Society and the Adolescent Self-Image.* Princeton, N.J.: Princeton University Press.

Principal Author: Morris Rosenberg, Ph.D. (deceased)

Description: Rosenberg's Self-Esteem Scale (SES) is a brief, unidimensional measure of global self-esteem. It was originally constructed to measure the self-esteem of high school students. Since its development, the scale has been used with a number of other groups including substance abuse populations.

The SES consists of 10 statements related to overall feelings of self-worth or self-acceptance. The items are answered on a four-point scale ranging from strongly agree to strongly disagree.

Target Populations: The SES is applicable to clinical and general populations.

Administration: The SES was designed as a self-report measure, but has also been administered as an interview. It can be completed in less than 5 minutes.

Reliability and Validity of the Scale

Reliability: Internal consistency estimates range from *alpha* = .89 for a sample of 206 female undergraduate students (O'Brien, 1985) to .77 for a sample of 1,332 men over 60 years of age (Dobson, Goudy, Keith, & Powers, 1979). Byrne and Shavelson (1986) reported a coefficient *alpha* estimate of .87 for a sample of Canadian students in grade 11 and 12.

The SES has demonstrated good test-retest reliability. Fleming and Courtney (1984) reported a correlation of r = .82 for a college sample over a one-week period and Silber and Tippett (1965) found a correlation of r = .85 between two administrations of the SES with a college student sample over a 2-week period. A sample of methadone maintenance patients had a test-retest value of r = .73 over three months (Brockner & DiNardo, 1981).

Validity: Items included on the SES were intended to directly measure feelings or judgements of self-worth and self-acceptance. Dancer (1985) found that of all the items included on the SES, only the "I wish I could have more respect for myself" item could not be classified according to a defined categorization scheme she derived from general theories of self-esteem. This was consistent with earlier findings by McIver and Carmines (1981) that this item was not highly correlated with other items on the scale. According to Dancer, this item reflects "instrumental" behavior in that something is desired, rather than the cognitive ("I think...") or affective ("I feel...") assessments implied in the other items. Despite the lack of fit between this item and the other items, no one has called for the exclusion of the item and it has not appeared to compromise the psychometric characteristics of the SES to any significant degree.

The validity of the SES has been supported by significant relationships between it and other measures of global self-esteem (Byrne, 1983; Demo, 1985; O'Brien, 1985). Rosenberg (1965) has also documented relationships between global self-esteem as measured by the SES and other psychological and interpersonal variables. Adolescents with low scores were more likely to appear depressed to others, to express feelings of discouragement and unhappiness, to manifest symptoms of anxiety, to hold a low status in the group, and to receive less respect.

In pre-testing the instrument for validity, Rosenberg (1965) reported that the SES correlated negatively with nurses' ratings of depression, a self-report measure of depression, and with psychosomatic symptoms of depression. Fleming and Courtney (1984) reported correlations of $r = -.64$ and $r = -.59$ between the SES and measures of anxiety and depression. They also reported a descending pattern of correlations between the scale and five increasingly dissimilar factors (including self-regard, social confidence, physical appearance, school ability and physical ability) derived from a self-rating scale they developed. In a sample of French Canadian adults (including students and clinical samples), deMan, Balkou, and Iglesias (1987b) found that high self-esteem was negatively correlated with suicide ideation.

Studies with women indicate that self-esteem may be a central feature in their alcoholism. Indeed, the self-esteem of women alcoholics is lower than that of men alcoholics and of non-alcoholic women (Beckman, 1978). Kirkpatrick (1990) argued that women alcoholics need programs designed to address their unique needs which stem at least partly from the social stigma attached to women who drink to excess.

Research on the SES as it applies to substance abuse populations specifically, has demonstrated that self-esteem levels are related to education, length of time in treatment, residence, and income. In terms of outcome, these factors may serve to increase the predictive strength of the SES. Beckman and Bardsley (1986) found that male alcoholics with lower self-esteem (as measured by the SES) and lower self-efficacy concerning alcohol use were more likely to drop out of treatment than those with higher SES and higher self-efficacy scores. Similarly, methadone maintenance patients with low SES scores were found less likely to cope effectively with treatment; moreover, those in treatment the longest (25-36 months) had the lowest self-esteem (Brockner & DiNardo, 1981). These authors suggest that establishing the correlates of self-esteem may help to more accurately identify individuals at high risk of treatment dropout.

Ability to Measure Change: The SES has been used as an outcome measure with substance abusing populations to evaluate the impact of treatment on self-esteem. Oyabu and Garland (1987) reported significant improvements in self-esteem among 83 drug addicts and alcoholics after completing a 28-day residential treatment program. In a study of alcohol and drug abusing offenders, Field (1985) found a significant improvement in SES scores among 144 offenders following a pre-release treatment program. Field's item analysis indicated that nine out of ten items on the scale showed a significant positive change. Interestingly, the insensitive item in this case was the same item identified by Dancer (1985) and McIver and Carmines (1981) as lacking fit.

Studies have shown the SES to be a particularly sensitive outcome measure with women substance abusers. Beckman (1978) found significant increases in the SES scores of both men and women alcoholics following treatment, with women showing a greater increase than the men. Kaskutas (1992) compared the effectiveness of two treatment programs, Alcoholics Anonymous and Women For Sobriety (WFS), in increasing the self-esteem levels in women alcoholics. In each case, SES scores among women sober less than two months were compared to those of women sober 11 to 13 months. Higher levels of self-esteem were evident for both groups of women sober 11 to 13 months, but greater increases in SES scores were found among women who attended Women for Sobriety (a program that focuses on self-esteem). Bennett and Rigby (1991) also found significant increases in SES scores in female drug misusers following a one-year Christian rehabilitation program.

Other Forms: A French version of the SES was used by deMan, Balkou, and Iglesias (1987a) in their analysis of stress, social support, self-esteem and suicide ideation among French Canadians. Other variations on the standard form have included extending the number of options on the response format used with the scale to five and six points (O'Brien, 1985; Shahani, Dipboye, & Phillips, 1990).

Availability: The SES is in the public domain.

SES. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average SES Score	
Beckman (1978)[a]						Pre-	1-yr. FU
	Male alcoholics	44.6	120	0	120	3.3	3.9
	Female alcoholics	43.6	0	120	120	2.9	4.2
	Female non-alcoholic psychiatric patient	34.3	0	118	118	2.7	
	Female non-alcoholic community-based sample	42.1	0	119	119	4.8	
Beckman & Bardsley (1986)	Male alcoholics	44.6	54	0	54	*	
	Female alcoholics	40.5	0	67	67	*	
Brockner & DiNardo (1981)	Methadone maintenance	*	53	32	85	*	
Byrne (1983)	High school students	15-18	*	*	929	*	
Byrne & Shavelson (1986)	High school students	18	516	475	991	31.3	
de Man et al. (1987b)	General population	19-71	70	80	150	*	
Demo (1985)	Ninth grade students	14	24	31	55	*	
Dobson et al. (1979)	Older men	60+	1332	0	1332	*	
Field (1985)						Pre-	Post-
	Substance abuse offenders	31	30	0	30	21.3	27.4
Fleming & Courtney (1984)	College students	19	111	148	259	*	
Kaskutas (1992)[b]	Members of "Women for Sobriety" (WFS)	*	0	584	584	< 2 mo.	11-13 mos
	- number of months sober					2.9	2.3
	- number of months in WFS					3.5	2.0
	- number of months in AA					2.8	1.5

Study	Sample Type	Age	Males	Females	Total N	Average SES Score
McIver & Carmines (1981)	High school students	*	*	*	943	*
O'Brien (1985)	College students	*	0	206	206	*
Oyabu & Garland (1987)	Alcoholics	36.8	70	13	83	*
Rosenberg (1965)	Male adolescents	14-18	762	0	762	29.7
	Female adolescents	14-18	0	641	641	28.9
	Male adults	18-65	949	0	949	35.0
	Female adults	18-65	0	1345	1345	34.5
Silber & Tippett (1965)	Adolescents	18.8	23	21	44	*

Note. * indicates no values reported.

[a] Using the Guttman scaling procedure which allows a range of scores from 0 (low) to 6 (high self-esteem).

[b] Scored 0 (high) through 6 (low) self-esteem.

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B. Social/Leisure Measures

The substance abuser's skills, functioning, and satisfaction regarding interpersonal relationships and use of leisure time are important outcome measures for addictions treatment programs to consider. Social/leisure topics include social relationships, communication skills, social support, family and marital functioning, and use of leisure time. Suitable scales were found only for the family and marital functioning areas.

Measure: Family Environment Scale (FES)

The Family Environment Scale is a 90-item, true-false questionnaire that assesses family members' perceptions of their family social climate along 10 dimensions that fall into three categories: Interpersonal Relationships, Personal Growth, and System Maintenance. The scale has been shown to be reliable and valid with clinical and non-clinical population in a variety of family circumstances. The scale has been used with male and female adolescent, adult and elderly groups from various ethnic populations.

Detailed Review of the Family Environment Scale (FES)

Original Publication:

Moos, R.H., & Moos. B.S. (1986). Manual for the Family Environment Scale (2nd ed.). Palo Alto, CA: Consulting Psychology Press.

Principal Author:

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Description: The FES is a 90-item, true-false questionnaire designed to measure the social environment of various kinds of families. It contains 10 subscales that assess three underlying domains of family life. Relationship dimensions are assessed by the Cohesion, Expressiveness, and Conflict subscales. The Personal Growth dimensions are measured by the Independence, Achievement Orientation, Intellectual - Cultural Orientation, Active - Recreational Orientation, and Moral - Religious Emphasis subscales. The System Maintenance dimensions include the Organization and Control subscales. The FES systematically measures the respondent's perceptions of the social or interpersonal climate of his or her family.

Target Populations: The FES has been standardized on distressed and non-distressed families (Moos & Moos, 1986). The non-distressed sample included single-parent and multigenerational families from several ethnic groups in various stages of the family life cycle. The distressed sample consisted of families having a member with a history of psychiatric, substance abuse, or criminal behavior problems, or other family crisis.

Administration: The FES is a self-report inventory that takes 15-20 minutes to complete. Family members complete the measure independently.

Scoring and Interpretation: Subscale scores range from 1 to 9 and are obtained by summing the number of items in the scored direction. Standardized administration and scoring procedures are provided in the FES manual.

Reliability and Validity of the Scale

Reliability: Cronbach's *alpha* ratings of internal consistency range from .61 to .78 for the 10 subscales (Moos & Moos, 1986). Test-retest reliabilities range from $r = .68$ to $r = .86$ with a two-month interval, and $r = .52$ to $r = .89$ with a 12-month interval (Moos & Moos, 1986). Intercorrelations among the subscales suggest that the individual scales assess distinct yet related features of family social environments (Caldwell, 1985).

Validity: Existing social climate scales and structured interviews with members of various kinds of families provided information from which FES test items were constructed. A number of psychometric criteria were employed in choosing items for the final version.

The factor structure of the FES varies depending upon the representativeness of the sample. Although the scale was constructed with factor analytic procedures, several studies report different dimensional structures of two (Fowler, 1981), three (Nelson, 1984), and seven (Robertson & Hyde, 1982) factors.

The validity of the FES is supported by numerous studies which have found it to discriminate disturbed families from other families (Scoresby & Christensen, 1976), to correlate with related measures, and to relate to treatment outcome in predictable ways (Finney, Moos, & Mewborn, 1980). Filstead, McElfresh, and Anderson (1981) compared families of alcoholics with control families on the FES and found control families had significantly higher scores on seven of the subscales and significantly less conflict than alcoholic families. The scale also discriminates between the families of opiate addicts and control families (Kosten, Novak, & Kleber, 1984), relapsed alcoholics from remitted alcoholics and controls (Finney & Moos, 1991), and between alcoholics and non-alcoholics with and without a family history of alcoholism (Barry & Fleming, 1990).

Moos and Moos (1975) found no sex differences in perceptions of family social environments. In addition, significant correlations, ranging from $r = .33$ to $r = .69$, between patient and spouse scores on nine of the ten FES subscales have been reported (Reynolds, O'Leary, & Walker, 1982).

Studies have found the Relationship dimension of the FES to be significantly correlated with family strength indices and negatively correlated with family stress indices. The Conflict subscale showed the opposite pattern (Hoge, Andrews, Faulkner, & Robinson, 1989). Similarly, the Relationship dimension is significantly correlated with psychosomatic symptoms (-.28 to -.35) and depression (-.30 to -.44) in women (Holahan & Moos, 1981). The Personal Growth dimension is significantly related to reports of family discord (-.57) (Reynolds et al., 1982). The Conflict and Control subscales correlate positively with alcohol consumption, self-ratings of drinking problems, physical symptoms and depression, but negatively with measures of well-being. The remaining subscales show the opposite pattern of relationships (Finney et al., 1980; Moos, Bromet, Tsu, & Moos, 1979).

The predictive validity of the FES is supported by studies showing that the family environments of alcoholic patients having better treatment outcome are different from those of other patients. Family environments characterized by interpersonal conflict and disorganization were related to poorer outcome. Families of recovered alcoholics and readjusted psychiatric patients had significantly higher levels of cohesion and expression, and a greater emphasis on shared participation in recreational and religious activities compared to relapsers or poorly adjusted psychiatric patients (Billings & Moos, 1983; Finney & Moos, 1984; Moos et al., 1979; Moos & Moos, 1984).

Ability to Measure Change: The scale may be used as a measure of treatment effectiveness (Moos, Finney & Cronkite, 1990). Evaluations of family therapy programs show significant increases in family cohesion (Finney & Moos, 1984) and moral-religious emphasis, and significant decreases in conflict following treatment (Campbell, 1983). Finney et al. (1980) found that all of the two-year follow-up scores of remitted alcoholics were improved over their six-month follow-up scores, however, only the change in the Active-Recreational Orientation score was significant.

Other Forms: A 30-item children's version of the FES is available for use with children aged 5-12 years (Pino, Simons, & Slawinowski, 1983). The FES has been translated into Dutch, German, Hebrew, Italian, and Spanish.

Availability: Copyright restrictions prevent reproduction of the FES. The manual and test materials can be purchased from Consulting Psychologists Press, 3803 E. Bayshore Rd., Palo Alto, California, 94303, (415) 969-8901. The Canadian distributor for CPP is OISE Press/Guidance Centre, University of Toronto, 252 Bloor Street West, Toronto, Ontario, M5S 1V5. Readers who would like to consider the item content of the FES can refer to Moos and Moos (1975) (Appendix B) where the items on the different FES subscales have been listed.

FES. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average FES Subscale scores[a]									
						COH	E	CNF	I	AO	ICO	ARO	MRE	O	CNT
Barry & Fleming (1990)[b]	Community respondents drawn from medical clinics	36.0	*	*	280										
	- alcoholics with FH+		*	*	39	6.3	5.7	6.2							
	- alcoholics with FH-		*	*	43	6.9	6.4	5.5							
	- non-alcoholics with FH+		*	*	70	7.2	6.5	5.4							
	- non-alcoholics with FH-		*	*	128	7.2	6.7	5.4							
Campbell (1983)	Adolescent drug users	12-16	*	*	33										
	- pre-treatment					5.3	4.8	4.6	5.8	5.2	5.3	5.6	5.2	4.6	5.7
	- post-treatment					5.9	5.2	3.6	6.3	5.3	6.0	6.0	5.2	5.2	5.4
Filstead et al. (1981)	Alcoholic families	45.0	*	*	42	4.5	3.9	5.5	5.9	5.8	4.4	5.0	5.0	4.7	5.2
	Non-alcoholic families	*	*	*	285	6.4	5.4	4.6	6.7	5.6	6.2	6.2	4.6	5.2	4.8
Finney & Moos (1991)	10-yr. FU of groups:	*													
	- community controls		*	*	96	7.4	5.9	2.0				4.8	5.5	6.2	
	- remitted alcoholics		*	*	47	7.8	6.1	1.9				4.4	5.5	6.7	
	- relapsed alcoholics		*	*	36	6.5	5.2	2.1				3.8	5.2	4.7	
Horton & Retzlaff (1991)	Undergraduate students	*	21	0	21	5.2	4.9	4.0	5.9	6.2	4.7	5.5	4.6	6.0	4.5
			0	44	44	6.7	5.7	3.4	6.2	5.6	5.5	5.7	4.7	5.6	3.9
Scoresby & Christenson (1976)	Clinic family members	35-39	*	*	70	3.2	3.9	5.6	5.5	5.9	5.1	5.1	7.7	4.1	5.7
	Non-clinic family members	33-39	*	*	104	6.5	4.9	4.1	5.9	5.9	5.4	5.2	7.8	5.0	5.5

Note. *indicates no values reported.

[a] COH (Cohesion), E (Expressiveness), CNF (Conflict), I (Independence), AO (Achievement Orientation), ICO (Intellectual-Cultural Orientation), ARO (Active-Recreational Orientation), MRE (Moral-Religious Emphasis), O (Organization), CNT (Control).

[b] FH+ (positive family history of alcoholism), FH- (no family history of alcoholism).

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Measure: Dyadic Adjustment Scale (DAS)

The Dyadic Adjustment Scale is designed to provide a standardized measure of marital adjustment. Outcome studies have shown the scale to be sensitive to the changes in relationship quality that can result from addictions treatment. The DAS is suitable for use with adult and elderly married, unmarried and divorced couples from clinical and non-clinical populations. A French language version is available but validation data were not found for other cultural groups.

Detailed Review of the Dyadic Adjustment Scale (DAS)

Original Publication:

Spanier, G.B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38,* 15-28.

Principal Author:

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Description: The Dyadic Adjustment Scale is a 32-item scale that assesses the respondent's perception of the adjustment of the couple as a functioning group. It is designed for use with either married or unmarried cohabiting couples. The scale measures four components of dyadic adjustment which can also be used as subscales. Dyadic Satisfaction (DS) measures the degree of commitment to, and satisfaction with, the present state of the relationship. Dyadic Cohesion (DCoh) is the degree to which the couple engages in activities together. Dyadic Consensus (DCon) is the degree to which the couple can agree on important matters, and Affectional Expression (AE) measures the extent to which the couple is satisfied with the expression of affection. Total DAS scores can be used as a general measure of satisfaction with the relationship.

Target Populations: The DAS has been used extensively with married, unmarried and divorced couples from clinical and non-clinical populations.

Administration: The DAS is a self-report measure that can be administered to individuals or couples and can be adapted for use in interviews. The scale can be completed in 5-10 minutes.

Scoring and Interpretation: Total scores are obtained by summing all of the items and range from 0-151 with higher scores indicating a better relationship. Complete scoring information may be obtained from Multi-Health Systems.

Reliability and Validity of the Scale

Reliability: Coefficient *alpha* estimates of internal consistency have been calculated for each of the component scales, DS (.94), DCoh (.86), DCon (.90), AE (.73). Total scale estimates range from .91 to .96 (Spanier, 1976; Spanier & Thompson, 1982).

Validity: Three judges evaluated the content validity of the DAS by considering the relevancy, consistency and wording of the individual items (Spanier, 1976). It was determined that the individual items cover a representative sample of the critical behaviors and attitudes of dyadic adjustment.

The scale's validity is apparent in its ability to distinguish between married and divorced couples. In fact, divorced couples differ significantly from married couples on each of the 32 items (Spanier, 1976). Similarly, the correlations among the different subscales have been found to be lower for cohabiters than for married couples, and the correlation between the total scores of husbands and wives was r = .59 (Antill & Cotton, 1982).

Factor analyses provide further evidence of the scale's validity (Antill & Cotton, 1982; Spanier, 1976; Spanier & Thompson, 1982). The factor analyses resulted in the 32-items being grouped into four components (DS, DCoh, DCon, and AE) which are conceptually and empirically related to dyadic adjustment. Also the DAS has been found to correlate significantly (r = .47 to r = .88) with a number of established marital adjustment measures (Spanier, 1976; Zweben, 1986) and with measures of marital dysfunction (r = -.47 to r = -.56) (Perodeau & Kohn, 1989).

Ability to Measure Change: The DAS has been used as an outcome measure in a number of studies. Adam and Gingras (1982) evaluated the marital functioning of control couples and couples assigned to a marital enrichment program (MEP) at pre-test, mid-test, post-test and two months following completion of the program. Significant gains shown by the experimental couples on the DAS were maintained for an entire year following MEP.

Zweben (1986) followed up alcoholic couples that had undergone treatment one year earlier and found the DAS scores of the abstinent clients had significantly increased since intake. The marital adjustment scores as reported by the spouses were also significantly improved for these clients compared to scores of clients who had any drinking days since treatment.

Zweben, Pearlman, and Li (1988) compared the effectiveness of two different alcoholism therapies with couples and found that couples in both groups showed significant improvements on all marital adjustment and drinking-related outcome measures including the DAS. A subsequent study (Pearlman, Zweben, & Li, 1989) compared clinic couples with couples recruited for alcohol treatment research through media advertisements. Clinic couples had more troubled marriages at intake as measured by the DAS but showed significant improvement at post-treatment. Solicited couples were relatively more satisfied with their marriages at assessment and showed little change at follow-up.

Other Forms: The DAS has been translated into various languages. A French version of the DAS was found to correlate $r = .88$ with the English version (Adam & Gingras, 1982).

Availability: The DAS cannot be reproduced due to copyright restrictions, DAS forms and User manual are marketed by Multi-Health Systems Inc., 65 Overlea Blvd., Suite 210, Toronto, Ontario, M4H 1P1, (416)424-1700. For readers interested in seeing the items that comprise the test, it has been reproduced in Corcoran and Fischer (1987).

DAS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average DAS Score			
Adam & Gingras (1982)						Pre-	Mid-	Post-	2-mo. FU
	MEP[a] couples	33.0	18	18	36	110.5	114.0	117.0	119.5
	Control couples	30.0	19	19	38	111.5	113.0	115.5	115.0
Antill & Cotton (1982)	Married couples	37.1	108	0	108	111.6			
		34.6	0	108	108	112.7			
	Cohabiting individuals	25.4	68	68	136	115.1			
Pearlman et al. (1989)	Clinic couples	*	162	162	324	100.8			
	Solicited couples	*	56	56	112	108.2			
Perodeau & Kohn (1989)	Alcoholic husbands	43	31	0	31	*			
	Alcoholic wives	44	0	24	24	*			
Spanier (1976)	Married sample	35.1	109	109	218	114.8			
	Divorced sample	30.4	41	49	90	70.7			
Spanier & Thompson (1982)	Separated sample	30.0	*	*	50	*			
	Divorced sample	30.0	*	*	155	*			
Zweben (1986)						1-yr. FU			
	Alcoholic couples:	41.3	87	87	174	*			
	- no heavy drinking		19	19	38	117.7			
	- some heavy drinking days		45	45	90	99.7			
	- many heavy drinking days		23	23	46	95.6			
Zweben et al. (1988)							Client	Spouse	
	Conjoint therapy couples:	43.6	70	70	140	Pre-	100.2	98.3	
	- identified client		58	12	70	1-mo. FU	105.3	104.7	
	- alcoholic spouse		12	58	70	2-mo. FU	110.5	109.7	
	Advice counselling couples:	41.1	46	46	92	Pre-	104.1	107.5	
	- identified client		38	8	46	1-mo. FU	110.8	111.5	
	- alcoholic spouse		8	38	46	2-mo. FU	111.0	112.5	

Note. * indicates no values reported.

[a] Marital Enrichment Program.

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C. Other Measures

A number of additional life areas were identified by the working group as relevant to addictions treatment. These included: cognitive functioning, physical health, activities of daily living, and degree of empowerment. The following section includes two measures of cognitive functioning and one of physical health that were found to be suitable as outcome measures of addictions treatment.

Measure: Digit Symbol (DS)

The Digit Symbol subtest of the WAIS-R is a coding task in which the subject scans an array of numbers and substitutes symbols for the numbers according to a key printed at the top of the page. The well-documented difficulty alcoholics have on this test appears to be due primarily to impairments in learning, visual scanning and the analysis of visual contours. The difficulty that alcoholics have learning the symbol-digit associations forces them to continually look back to the key, in contrast to non-alcoholic subjects (Ryan & Butters, 1983). The validity of the test is well-established. It has been used as an outcome measure of addictions treatment and with male and female adolescent, adult and elderly samples from clinical and non-clinical populations. Studies using the DS with specific cultural groups were not found.

Detailed Review of the Digit Symbol Test (DS)

Original Publication:

Wechsler, D. (1955). *Wechsler Adult Intelligence Scale. Manual.* New York: Psychological Corporation.

Principal Author: David Wechsler, Ph.D.

Description: Digit Symbol is a subtest of the revised version of the Wechsler Adult Intelligence Scale (WAIS-R). It is a symbol substitution task consisting of four rows of 100 blank squares, each paired with a randomly assigned number from one to nine. A printed key is provided that pairs each number with a different nonsense symbol. The subject fills in the blank spaces with the symbol that is paired to the number above the blank as quickly as possible (Lezak, 1976). The time limit for the test is 90 seconds. The task requires attention, quick and efficient visual scanning and motor skills, and the ability to analyse shapes.

Target Populations: The test has been applied to adolescents, the elderly, non-clinical, and a variety of clinical populations.

Administration: See WAIS-R manual for standardized administration procedures. The test takes less than five minutes to administer.

Scoring and Interpretation: The total score is the number of squares filled in correctly in 90 seconds. Scores range from 0 to 100. These scores are usually scaled using procedures provided in the WAIS-R manual, and resulting in final scores ranging from 1 to 19.

Reliability and Validity of the Scale

Reliability: A test-retest correlation coefficient of $r = .76$ was obtained when 35 undergraduate students were administered the DS twice in immediate succession (Catron, 1978).

Validity: Evidence for the test's validity comes from its relationships with similar tests and related physiological indicators, and its ability to discriminate between populations and predict behavior.

The DS correlates (*r*) .63 to .67 with WAIS-R Full Scale scores, an indicator of overall intelligence, across the ages of 20-54 (Wechsler, 1958). The decline in DS performance with age is proportional to the drop in overall Full Scale score. DS scores also correlate with other neuropsychological tests that assess the same underlying skills (Ryan & Butters, 1983).

There are links between alcohol-induced physiological changes and cognitive performance. Alcoholics with extreme elevations in the liver enzyme gamma-glutamyl transferase (GGT), an indicator of acute liver dysfunction, had significantly poorer DS scores than did alcoholics with normal or mild GGT elevations (Richardson et al., 1991). Furthermore, the degree of cortical atrophy and performance on DS are associated with duration of drinking (Cala, Jones, Mastaglia, & Wiley, 1978).

Seventy-five percent of studies reviewed by Parsons and Farr (1981) found significant impairment in alcoholics compared to controls on DS. Studies have also shown the DS to discriminate reliably between subjects with different drinking styles. Williams and Skinner (1990) found that a high alcohol consumption group had significantly lower DS scores than a matched low alcohol group, and Page and Cleveland (1987) found that DS scores declined with increased alcohol consumption (nondrinkers > social drinkers > abstinent alcoholics > alcoholics). The pattern of cognitive performance of women alcoholics is similar to that of men alcoholics (Acker, 1985; Fabian, Parsons, & Silberstein, 1981).

Some studies have examined therapy completion as a function of cognitive performance. O'Leary, Donovan, and Chaney (1978) assessed the cognitive functioning of alcoholics using the Brain-Age Quotient (a composite score of five separate neuropsychological tests including DS and the Trail Making Test-B) two weeks after cessation of drinking. Ninety percent of alcoholics with high BAQ scores (indicating impaired cognitive functioning) had more drinking episodes, shorter periods of abstinence, and higher levels of alcohol consumption at follow-up than did the majority of low BAQ scorers. A related study found that the lower the respondent's DS performance and the greater the impairment in adaptation to life tasks, the less likely they are to complete treatment, and the more likely they are to resume drinking (Parsons & Farr, 1981).

Ability to Measure Change: A number of studies have applied the DS test as an outcome measure and found significant improvement in scores following addictions treatment (Long & McLachlan, 1974; Schau, O'Leary, & Chaney, 1980). Forsberg and Goldman (1987) have demonstrated that specific remediation techniques can further enhance recovery on the DS in alcoholics.

Other Forms: Symbol Digit is an alternate form of the DS which can be given in verbal or written form. However, Symbol Digit appears to be less sensitive to change, showing no recovery of function in alcoholics even after five years (Ryan & Butters, 1983).

Availability: The Digit Symbol test cannot be reproduced due to copyright restrictions. The WAIS-R can be purchased from the Psychological Corporation, Harcourt Brace Jovanovich, Inc. (7500 Old Oak Blvd., Cleveland, Ohio, 44130) by qualified professional users in accordance with the standards of the American Psychological Association.

DS. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average scaled DS scores[a]	
Acker (1985)	Female alcoholics	43.2	0	33	33	8.1	
	Female non-alcoholic controls	40.6	0	40	40	10.3	
Fabian et al. (1981)	Study 1:						
	- female alcoholics	41.0	0	37	37	10.5	
	- female non-alcoholic controls	41.5	0	73	73	12.4	
	Study 2:						
	- female alcoholics	42.6	0	35	35	10.9	
	- female non-alcoholic controls	43.6	0	35	35	11.3	
Forsberg & Goldman (1987)						30-day FU	
	Controls	36.2	16	0	16	10.2	
	Non-remediated alcoholics	40.8	18	0	18	8.3	
	Remediated alcoholics (1)	39.1	18	0	18	9.2	
	Remediated alcoholics (2)	36.8	18	0	18	10.2	
Long & McLachlan (1974)						Pre-	1-yr. FU
	Male alcoholics	44.6	17	0	17	9.2	10.2
	Male non-alcoholics	45.9	22	0	22	14.1	*
Page & Cleveland (1987)	Male non-drinkers	25-65	72	0	72	9.8	
	Male social drinkers		100	0	100	*	
	Male abstinent alcoholics		58	0	58	*	
	Male alcoholics		92	0	92	9.3	
Schau et al. (1980)						14-mo. FU	Mean change scores
	Alcoholics	49.6	*	*	38	8.7	.6
	Matched controls	49.8	*	*	38	10.8	-.4
Williams & Skinner (1990)	Heavy drinkers	19-70	12	7	19	5.6	
	Matched controls	19-70	12	7	19	9.1	

Note. * indicates no values reported. Comprehensive age - scale norms are available in the WAIS-R manual (Wechsler, 1955).
[a] Data reported as scaled scores where higher values indicate better cognitive functioning.

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Long, J.A., & McLachlan, J.F.C. (1974). Abstract reasoning and perceptual-motor efficiency in alcoholics: Impairment and reversibility. *Quarterly Journal of Studies on Alcohol, 35,* 1220-1229.

O'Leary, M.R., Donovan, D.M., & Chaney, E.F. (1978). *The clinical utility of the Brain-Age Quotients in alcoholism treatment.* Unpublished manuscript.

Page, R.D., & Cleveland, M.F. (1987). Cognitive dysfunction and aging among male alcoholics and social drinkers. *Alcoholism: Clinical and Experimental Research, 11,* 376-384.

Parsons, O.A., & Farr, S.P. (1981). The neuropsychology of alcohol and drug use. In S. Filskov & T. Boll (Eds.), *Handbook of clinical neuropsychology: Vol. I.* New York: Wiley.

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Sanchez-Craig, M., Spivak, K., & Davila, R. (1991). Superior outcome of females over males after brief treatment for the reduction of heavy drinking: Replication and report of therapist effects. *British Journal of Addiction, 86,* 867-876.

Schau, E.J., O'Leary, M.R., & Chaney, E.F. (1980). Reversibility of cognitive deficits in alcoholics. *Journal of Studies on Alcohol, 41,* 733-740.

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Williams, C.M., & Skinner, A.E.G. (1990). The cognitive effects of alcohol abuse: A controlled study. *British Journal of Addictions, 85,* 911-917.

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Measure: Trail Making Test-B (TMB)

The Trail Making Test-B is an easily administered neuropsychological tool that assesses a number of elementary skills. It is among the most consistently sensitive measures of alcohol-induced cognitive dysfunction available, and has been applied to adult and elderly males and females from a variety of clinical and non-clinical populations. Studies of use with adolescents or specific cultural groups were not found. Because the scale is prone to practice effects it is not recommended as a discharge measure; however, there are indications that alcoholics who maintain abstinence improve their performance on the TMB at follow-up.

Detailed Review of the Trail Making Test-B (TMB)

Original Publication:

Reitan, R.M. (1955). The relation of the Trail Making Test to organic brain damage. *Journal of Consulting Psychology*, 19, 393-394.

Principal Author:

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Description: The Trail Making Test is a brief problem-solving test that was developed to be a sensitive indicator of neuropsychological dysfunction. It is divided into two parts. Part A requires the subject to draw a line connecting 25 circles numbered 1 to 25 as quickly as possible in ascending order. In Part B, the respondent is required to rapidly connect 25 circles numbered 1 to 13 and lettered A to L, alternating between numbers and letters. The tasks require the integration of several elementary skill components, including motor speed and accuracy, visual scanning and attentional functions. It is necessary to administer Trails A first, before giving Trails B, even though only the results of Trails B are used for clinical interpretation. Trails B (TMB) is highly vulnerable to the effects of brain injury and alcohol-induced cognitive dysfunction.

Target Populations: The TMB has been applied to a variety of clinical populations suffering brain damage.

Administration: Standardized application procedures can be obtained from the author.

Scoring and Interpretation: The score for the TMB test is the number of seconds required for completion with a maximum time allowed of 186 seconds. Errors should be noted but contribute to the score only in the increased time of performance. Comprehensive norms are available in Davies (1968). Age-adjusted norms should be used in interpreting scores.

Reliability and Validity of the Scale

Reliability: The preferred scoring system, requiring the examiner to point out errors as they occur, has exacted a price on reliability. The measured amount of time includes the examiner's reaction time in noticing errors and the speed with which the patient understands and corrects the error. Differences in response times and correction styles can affect the time scores obtained by different examiners (Lezak, 1983). Three administrations of TMB to 19 non-clinical subjects at 6- and 12-month intervals gave a test-retest correlation coefficient of $r = .67$ (Lezak, 1982).

Validity: The TMB has been shown to be a sensitive indicator of brain injury, but like most indices of brain impairment, TMB performance declines with age (Lezak, 1983). Davies (1968) provided norms for evaluating TMB performance throughout the adult years. Sex differences are not apparent on the TMB.

Goldstein and Shelly (1971) reported that comparisons and factor analyses with established cognitive measures suggest that the TMB loads on two main factors which they labelled abstraction and problem-solving (.64) and perception and motor skills (.44).

The TMB correlates highly with many other measures of neuropsychological ability including part A of the Trail Making Test, which requires connection of numbered circles only. Impairments (high scores) on the TMB are significantly correlated with WAIS subtest scores (ranging from $r = -.30$ to $r = -.65$), and with subscales of the Wechsler Memory Scale (ranging from $r = -.24$ to $r = -.56$) (Corrigan & Hinkeldey, 1987).

In alcoholics there is a consistent pattern of cognitive impairment which includes poor performance on visuomotor, attention shifting, and abstraction/problem-solving tasks. These deficits are apparent not only on the TMB but on other neuropsychological tests that assess the same skills (Parsons & Farr, 1981).

In their literature review, Parsons and Farr (1981) found that 73% of studies note depressed performance on the TMB in alcoholics. TMB scores can distinguish alcoholics from brain-damaged individuals (Fitzhugh, Fitzhugh, & Reitan, 1965) and non-alcoholic controls (Claiborn & Greene, 1981; Long & McLachlan, 1974). Sanchez-Craig (1980) reported that bout drinkers and young drinkers perform better on the TMB than daily and older drinkers and noted no difference on TMB mean scores between male and female alcoholics.

Ability to Measure Change: The TMB is sensitive to changes in its component skills that result from therapy. Tourette's syndrome patients had a significant average change score (a reduction in time of 13.7 seconds) on the TMB following drug therapy for their condition (Kurlan, Majumdar, Deeley, Mudholkar, Plumb, & Como, 1991).

A number of studies have shown substantial improvements in TMB scores with abstinence (Claiborn & Greene, 1981; Kish, Hagen, Woody, & Harvey, 1980; Page & Linden, 1974). It should be noted however, that because the TMB is prone to practice effects, these studies compared TMB scores of those beginning treatment to groups farther along in treatment, rather than using longitudinal data on the same people as they progressed through treatment. Other researchers (Goldman, 1986; Long & McLachlan, 1974; Parsons & Farr, 1981) have found nonsignificant differences in TMB performance following addictions treatment and suggested that the test may tap a less reversible type of cognitive deterioration. However, Goldman and others (1986; Goldman & Goldman, 1988) were able to demonstrate that deficits following chronic alcohol abuse can be reversed with environmental stimulation. Training on the skills presumed to underlie performance on the TMB led to rapid and dramatic improvements. Remediated alcoholics were significantly faster on the TMB than nonremediated alcoholics, and performed comparably to matched, nonalcoholic controls.

Availability: The Trail Making Test cannot be reproduced due to copyright restrictions. The test can be purchased from the Reitan Neuropsychology Laboratory (2920 S. 4th Avenue, South Tucson, Arizona, 85713, (602)882-2022) by qualified professional users in accordance with the standards of the American Psychological Association.

TMB. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average TMB Score (Sec.)	
						Time 1	Time 2
Claiborn & Greene (1981)	Male alcoholics (Wk 1 of treatment)	44.8	25	0	25	131.0	
	Male alcoholics (Wk 5 of abstinence)	48.2	10	0	10		105.2
	Male psychiatric patients	40.2	12	0	12	102.6	76.8
	Male non-alcoholic controls	28.7	25	0	25	65.7	61.0
Goldman & Goldman (1988)[a]	Male alcoholics:	*	53	0	53		
	- rec'd cognitive remediation sessions on days 10-11 of an alcohol treatment program	31.1	*	0	*	60.0	
	- no cognitive remediation, tested on days 10-11	33.1	*	0	*	125.0	
	- rec'd cognitive remediation sessions in days 18-19	31.8	*	0	*	90.0	
	- no cognitive remediation, tested in days 18-19	31.6	*	0	*	112.0	
	Male non-alcoholic control group	*	13	0	13	79.0	
Goldstein & Shelly (1971)	Male alcoholics	45.3	50	0	50	114.0	
Kish et al. (1980)[b]	Male alcoholics:	45.4	107	0	107		
	- 6 days sober		20	0	20	153.6	
	- 15 days sober		20	0	20	143.3	
	- 21 days sober		33	0	33	105.9	
	- 110 days sober		34	0	34	106.5	
Kurlan et al. (1991)	Tourette's syndrome patients:	33.0	8	2	10	Mean change scores:	
	- naltrexone treated		*	*	*	-13.7	
	- placebo treated		*	*	*	-4.6	
Long & McLachlan (1974)	Male alcoholics	44.6	17	0	17	Pre-	4.9[c]
						1 yr. FU	5.1[c]
	Male non-alcoholic controls	45.9	22	0	22		7.1[c]
Page & Linden (1974)	Male alcoholics (Wk 1 of treatment)	*	24	0	24	1.8[c]	
	Male alcoholics (Wk 2 of treatment)	*	20	0	20	3.2[c]	
Sanchez-Craig (1980)	Female alcoholics	38.6	0	66	66	119.7	
	Male alcoholics	41.9	120	0	120	114.5	

Note. * indicates no values reported.

[a] Average TMB scores (sec.) were estimated from Goldman and Goldman (1988), Figure 1.

[b] Used independent groups.

[c] TMB scored on a 10-point scale depending on time to completion, with higher scores indicating faster speeds.

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Measure: Health Questionnaire (HQ)
(originally called Cornell Medical Index)

The Health Questionnaire provides a reliable and valid assessment of physical health. Despite the inclusion of a number of items related to the respondent's medical history, the inventory has been used effectively as an outcome measure. Studies show that it can detect improvements in physical health following addictions treatment. The scale has been used with male and female adult and elderly samples from clinical and non-clinical populations, and with a variety of cultural samples.

Health Questionnaire

INSTRUCTIONS: If you can answer **YES** to the question asked, put a circle around the **Yes**
If you have to answer **NO** to the question asked, put a circle around the **No**
Answer all questions. If you are not sure, guess.

A

1. Do you need glasses to read? . . . . Yes No
2. Do you need glasses to see things at a distance? . . . . Yes No
3. Has your eyesight often blacked out completely? . . . . Yes No
4. Do your eyes continually blink or water? . . . . Yes No
5. Do you often have bad pains in your eyes? . . . . Yes No
6. Are your eyes often red or inflamed? . . . . Yes No
7. Are you hard of hearing? . . . . Yes No
8. Have you ever had a bad running ear? . . . . Yes No
9. Do you have constant noises in your ears? . . . . Yes No

B

10. Do you have to clear your throat frequently? . . . . Yes No
11. Do you often feel a choking lump in your throat? . . . . Yes No
12. Are you often troubled with bad spells of sneezing? . . . . Yes No
13. Is your nose continually stuffed up? . . . . Yes No
14. Do you suffer from a constantly running nose? . . . . Yes No
15. Have you at times had bad nose bleeds? . . . . Yes No
16. Do you often catch severe colds? . . . . Yes No
17. Do you frequently suffer from heavy chest colds? . . . . Yes No
18. When you catch a cold, do you always have to go to bed? . . . . Yes No
19. Do frequent colds keep you miserable all winter? . . . . Yes No
20. Do you get hay fever? . . . . Yes No
21. Do you suffer from asthma? . . . . Yes No
22. Are you troubled by constant coughing? . . . . Yes No
23. Have you ever coughed up blood? . . . . Yes No

24. Do you sometimes have severe soaking sweats at night? Yes No
25. Have you ever had a chronic chest condition? Yes No
26. Have you ever had T.B. (Tuberculosis)? Yes No
27. Did you ever live with anyone who had T.B.? Yes No

C

28. Has a doctor ever said your blood pressure was too *high*? Yes No
29. Has a doctor ever said your blood pressure was too *low*? Yes No
30. Do you have pains in the heart or chest? Yes No
31. Are you often bothered by thumping of the heart? Yes No
32. Does your heart often race like mad? Yes No
33. Do you often have difficulty in breathing? Yes No
34. Do you get out of breath long before anyone else? Yes No
35. Do you sometimes get out of breath just sitting still? Yes No
36. Are your ankles often badly swollen? Yes No
37. Do cold hands or feet trouble you even in hot weather? Yes No
38. Do you suffer from frequent cramps in your legs? Yes No
39. Has a doctor ever said you had heart trouble? Yes No
40. Does heart trouble run in your family? Yes No

D

41. Have you lost more than half your teeth? Yes No
42. Are you troubled by bleeding gums? Yes No
43. Have you often had severe toothaches? Yes No
44. Is your tongue usually badly coated? Yes No
45. Is your appetite always poor? Yes No
46. Do you usually eat sweets or other food between meals? Yes No
47. Do you always gulp your food in a hurry? Yes No
48. Do you often suffer from an upset stomach? Yes No
49. Do you usually feel bloated after eating? Yes No
50. Do you usually belch a lot after eating? Yes No
51. Are you often sick to your stomach? Yes No
52. Do you suffer from indigestion? Yes No
53. Do severe pains in the stomach often double you up? Yes No
54. Do you suffer from constant stomach trouble? Yes No

55. Does stomach trouble run in your family? . . . Yes No

56. Has a doctor ever said you had stomach ulcers? . . . Yes No

57. Do you suffer from frequently loose bowel movements? . . . Yes No

58. Have you ever had severe bloody diarrhea? . . . Yes No

59. Were you ever troubled with intestinal worms? . . . Yes No

60. Do you constantly suffer from bad constipation? . . . Yes No

61. Have you ever had piles (rectal hemorrhoids)? . . . Yes No

62. Have you ever had jaundice (yellow eyes and skin)? . . . Yes No

63. Have you ever had serious liver or gall bladder trouble? . . . Yes No

E

64. Are your joints often painfully swollen? . . . Yes No

65. Do your muscles and joints constantly feel stiff? . . . Yes No

66. Do you usually have severe pains in the arms or legs? . . . Yes No

67. Are you crippled with severe rheumatism (arthritis)? . . . Yes No

68. Does rheumatism (arthritis) run in your family? . . . Yes No

69. Do weak or painful feet make your life miserable? . . . Yes No

70. Do pains in the back make it hard for you to keep up with your work? . . . Yes No

71. Are you troubled with a serious bodily disability or deformity? . . . Yes No

F

72. Is your skin very sensitive or tender? . . . Yes No

73. Do cuts in your skin usually stay open a long time? . . . Yes No

74. Does your face often get badly flushed? . . . Yes No

75. Do you sweat a great deal even in cold weather? . . . Yes No

76. Are you often bothered by severe itching? . . . Yes No

77. Does your skin often break out in a rash? . . . Yes No

78. Are you often troubled with boils? . . . Yes No

G

79. Do you suffer badly from frequent severe headaches? . . . Yes No

80. Does pressure or pain in the head often make life miserable? . . . Yes No

81. Are headaches common in your family? . . . Yes No

82. Do you have hot or cold spells? . . . Yes No

83. Do you often have spells of severe dizziness? . . . Yes No

84. Do you frequently feel faint? . . . Yes No

85. Have you fainted more than twice in your life? Yes No
86. Do you have constant numbness or tingling in any part of your body? Yes No
87. Was any part of your body ever paralyzed? Yes No
88. Were you ever knocked unconscious? Yes No
89. Have you at times had a twitching of the face or head? Yes No
90. Did you ever have a fit or convulsion (epilepsy)? Yes No
91. Has anyone in your family ever had fits or convulsions (epilepsy)? Yes No
92. Did you bite your nails badly? Yes No
93. Are you troubled by stuttering or stammering? Yes No
94. Are you a sleep walker? Yes No
95. Are a bed wetter? Yes No
96. Were you a bed wetter between the ages of 8 and 14? Yes No

H -- FEMALES

97. Have your menstrual periods usually been painful? Yes No
98. Have you often felt weak or sick with your periods? Yes No
99. Have you often had to lie down when your periods came on? Yes No
100. Have you usually been tense or jumpy with your periods? Yes No
101. Have you ever had constant severe hot flashes and sweats? Yes No
102. Have you often been troubled with vaginal discharge? Yes No
103. Do you have to get up every night and urinate? Yes No
104. During the day, do you usually have to urinate frequently? Yes No
105. Do you often have severe burning pain when you urinate? Yes No
106. Do you sometimes lose control of your bladder? Yes No
107. Has a doctor ever said you had kidney or bladder disease? Yes No

H -- MALES

97. Have you ever had anything seriously wrong with your genitals (privates)? Yes No
98. Are your genitals often painful or sore? Yes No
99. Have you ever had treatment for your genitals? Yes No
100. Has a doctor ever said you had a hernia (rupture)? Yes No
101. Have you ever passed blood while urinating (passing water)? Yes No
102. Do you have trouble starting your stream when urinating? Yes No
103. Do you have to get up every night and urinate? Yes No

104. During the day, do you usually have to urinate frequently? Yes No
105. Do you often have severe burning pain when you urinate? Yes No
106. Do you sometimes lose control of your bladder? Yes No
107. Has a doctor ever said you had kidney or bladder disease? Yes No

I

108. Do you often get spells of complete exhaustion or fatigue? Yes No
109. Does working tire you out completely? Yes No
110. Do you usually get up tired and exhausted in the morning? Yes No
111. Does every little effort wear you out? Yes No
112. Are you constantly too tired and exhausted even to eat? Yes No
113. Do you suffer from severe nervous exhaustion? Yes No
114. Does nervous exhaustion run in your family? Yes No

J

115. Are you frequently ill? Yes No
116. Are you frequently confined to bed by illness? Yes No
117. Are you always in poor health? Yes No
118. Are you considered a sickly person? Yes No
119. Do you come from a sickly family? Yes No
120. Do severe pains and aches make it impossible for you to do your work? Yes No
121. Do you wear yourself out worrying about your health? Yes No
122. Are you always ill and unhappy? Yes No
123. Are you constantly made miserable by poor health? Yes No

K

124. Did you ever have scarlet fever? Yes No
125. As a child, did you have rheumatic fever, growing pains or twitching of the limbs? Yes No
126. Did you ever have malaria? Yes No
127. Were you ever treated for severe anemia (thin blood)? Yes No
128. Were you ever treated for "bad blood" (venereal disease)? Yes No
129. Do you have diabetes (sugar disease)? Yes No
130. Did a doctor ever say you had a goiter (in your neck)? Yes No
131. Did a doctor ever treat you for tumor or cancer? Yes No
132. Did you suffer from any chronic disease? Yes No

133. Are you definitely *under* weight? Yes No

134. Are you definitely *over* weight? Yes No

135. Did a doctor ever say you had varicose veins (swollen veins) in your legs? Yes No

136. Did you ever have a serious operation? Yes No

137. Did you ever have a serious injury? Yes No

138. Did you often have small accidents or injuries? Yes No

L

139. Do you usually have great difficulty in falling asleep or staying asleep? Yes No

140. Do you find it impossible to take a regular rest period each day? Yes No

141. Do you find it impossible to take regular daily exercise? Yes No

142. Do you smoke more than 20 cigarettes a day? Yes No

143. Do you drink more than six cups of coffee or tea a day? Yes No

144. Do you usually take two or more alcoholic drinks a day? Yes No

Note. The male and female versions of the HQ are identical except for section H.

Scoring: HQ total physical symptom scores are obtained by summing the number of YES responses.

Detailed Review of the Health Questionnaire (HQ)

Original Publication:

Brodman, K., Erdmann, A.J., Lorge, I., & Wolff, H.G. (1949). The Cornell Medical Index: An adjunct to medical interview. *Journal of the American Medical Association, 140,* 530-534.

Principal Author: Kenneth Brodman, M.D.

Description: The Health Questionnaire (HQ) is a quick and reliable health questionnaire designed to provide a summary of presenting complaints and medical history. The scale consists of 195 Yes/No items. The physical symptom section of the scale is made up of 144 items grouped into 12 sections by body system or type of symptom. The remaining 51 items which refer specifically to psychiatric symptoms, were excluded. The HQ is widely used as a clinical screening and as an epidemiological tool to assess the prevalence of somatic and emotional symptoms in a variety of populations.

Target Populations: The HQ is applicable to general and clinical populations.

Administration: The HQ is a self-report measure that can be completed within 15 to 20 minutes.

Reliability and Validity of the Scale

Reliability: No standard reliability measures are available for the HQ. However, Brodman, Erdman, Lorge, & Wolff (1949) reported in their initial study that written responses to the HQ items correlated highly with answers to the same questions in oral interviews by physicians. They reported that 95% of the questions on the HQ were answered identically in the interview.

Validity: Items on the HQ were chosen to correspond closely to those asked in a detailed and comprehensive medical interview. Original validation studies compared the data collected on 179 medical patients by the HQ with information recorded by physicians using comprehensive hospital medical histories (Brodman et al., 1949). It was determined that the HQ collected most of the critical data recorded by physicians and considerable information not included in the histories.

Number of symptoms reported on the HQ was found to be positively correlated with high biomedical risk levels in women. High-scoring women were more likely to be overweight, have higher blood pressure and higher cholesterol levels. The total number of symptoms reported on the HQ was also positively related to cigarette smoking among women (Carmody, Matarazzo, Fey, & Connor, 1982).

The HQ has been used extensively with substance abuse populations who tend to suffer a high rate of medical illness. Several studies have found that drug and alcohol dependent individuals score higher on the HQ than do general population samples (Dudley, 1976; Grey, Osborn & Reznikoff, 1986). HQ scores were significantly related to both the frequency and amount of alcohol consumed in a sample of native drinkers (Weibel-Orlando, Weisner, & Long, 1984).

The HQ has also been found to be significantly and positively associated with measures of alcohol abuse. In a sample of male alcoholics, HQ totals correlated with the Manson ALCAAD Test scores ($r = .59$) (Dudley, 1976). The Alcohol Dependence Scale correlated $r = .64$ with the physical index of the HQ and $r = .62$ with the psychiatric index in an alcoholic sample (Skinner & Allen, 1982).

The HQ has also been found to predict treatment dropout. Baekeland, Lundwall, and Shanahan (1973) found that those who dropped out of alcohol treatment after one to four weeks of treatment had significantly higher total HQ scores than those who attended for at least six months. Similarly, Calsyn (1983) reported that 27% of alcoholic respondents endorsed items on scale J (frequency of illness) of the HQ, and that these frequently ill individuals were more likely to dropout of treatment.

The HQ has consistently discriminated between patient groups and healthy controls. In their native study, Weibel-Orlando et al. (1984) found a significant difference in HQ scores between abstainers and current drinkers, with current drinkers having higher HQ scores. Gunderson, Nail, & Kolb (1975) compared healthy controls, light multiple drug abusers, heavy multiple drug abusers, and psychiatric populations on the HQ. Differences between the drug and control samples were significant for more than two-thirds of the HQ items. Forty-eight of the somatic symptoms were identified as reflecting large differences between drug abusers and controls or between light and heavy users. The light multiple drug sample had high HQ scores of 30 or above more frequently than controls (28% vs 3%) but less frequently than psychiatric patients (52%) and heavy multiple drug users (51%).

Ability to Measure Change: The HQ has been used in at least one study as an outcome measure of addictions treatment. Babor, Dolinsky, Rounsaville, and Jaffe (1988) compared the post-treatment HQ scores of abstainers, low level, and high level drinkers with their respective pre-treatment scores. All three outcome groups scored high on the HQ prior to treatment. While all groups showed improvement at follow-up, abstainers showed the greatest decrease on the total HQ score.

Other Forms: There are two forms of the HQ, one for men and one for women. Both are identical except for six questions in the genitourinary section.

Availability: The HQ is in the public domain.

HQ. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average Total HQ Score
Babor et al. (1988)	Alcohol treatment follow-up status:	25-52	*	*	231	Pre- 1-yr. FU
	- abstainers		*	*	54	18.4 10.2
	- low level drinkers		*	*	84	19.6 13.3
	- high level drinkers		*	*	93	18.7 15.3
Baekeland et al. (1973)	Rapid dropouts	*	*	*	30	30.4
	6 month attenders	*	*	*	28	21.9
Brodman et al. (1953)	White medical outpatients	*	1980	0	1980	15
			0	2796	2796	21
	Black medical outpatients	*	127	0	127	19
			0	216	216	23
Calsyn et al. (1983)	Male alcoholics	45.8	142	0	142	*
Carmody et al. (1982)	Females		0	213	213	
	- young adult	20-30	0	*	*	18.2
	- adult	31-40	0	*	*	22.6
	- older adult	41 +	0	*	*	26.4
	Males		202	0	202	
	- young adult	20-30	*	0	*	12.6
	- adult	31-40	*	0	*	12.7
	- older adult	41 +	*	0	*	15.4
Dudley (1976)	Alcoholics	47.0	30	0	30	36

Study	Sample Type	Age	Males	Females	Total N	Average Total HQ Score
Grey et al. (1986)	Opiate addicts:	23-46	44	16	60	
	- methadone treatment	*	*	*	30	34.3
	- naltrexone treatment	*	*	*	30	33.5
Gunderson et al. (1975)	Male navy personnel:		2520	0	2520	
	- healthy controls	20.9	725	0	725	*
	- light drug abusers	20.1	329	0	329	*
	- heavy drug abusers	20.1	44	0	44	*
	- psychiatric patients	23.4	1422	0	1422	*
McLellan et al. (1985)	Alcoholics	40.0	32	0	32	*
		41.0	0	26	26	*
	Drug dependent	30.0	84	0	84	*
		28.0	0	39	39	*
Skinner & Allen (1982)	Alcoholics	15-66	180	45	225	*
Waller & Lorch (1978)	Alcoholics	42	101	36	137	*
Weibel-Orlando et al. (1989)	Rural natives	38.8	64	59	123	*
	Urban natives	35.8	78	77	155	*

Note. * indicates no values reported. Physical HQ scores are based on physical symptom counts.

References:

Babor, T.F., Dolinsky, A., Rounsaville, B., & Jaffe, J. (1988). Unitary versus multidimensional models of alcoholism treatment outcome: An empirical study. *Journal of Studies on Alcohol, 49,* 167-177.

Baekeland, F., Lundwall, L., & Shanahan, T.J. (1973). Correlates of patient attrition in the outpatient treatment of alcoholism. *Journal of Nervous and Mental Disease, 157,* 99-107.

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Waller, S., & Lorch, B.D. (1978). Social and psychological characteristics of alcoholics: A male-female comparison. *The International Journal of the Addictions, 13,* 201-212.

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D. Life Stability Measures Relevant to Outcome of Addictions Treatment: Legal, Employment, Financial and Accommodation Status, and Use of Other Services

A number of concrete life areas are of interest in the evaluation of addictions treatment. These include legal, employment, financial, and accommodation status, as well as use of medical/hospital, social or other addictions services. The first four of these areas have usually been considered indicators of stable living. In fact, existing measures of social stability used with addictions populations are usually based on functioning in these areas. A discussion of global social stability measures is provided in the final part of this section.

Various types of data collection have been used to obtain information in these areas, such as direct questions to clients and their families and searches of legal or medical records. Measurement in these areas typically has not involved the development and validation of "scales".

Although these life areas are of interest to addictions treatment programs, they are considered *secondary measures* of treatment outcomes, having several features in common:

- the life area may not necessarily be changeable by addictions treatment (e.g., addictions treatment may not be able to alter low income and high cost of housing)
- problems in some of these areas occur only in a subset of substance abusers (for some programs, this subset may be quite small)
- goals in these areas are likely to be highly individualized. For example, a goal for one person might relate to debt management (where income is adequate), while the goal for another person might be on improving income (through obtaining employment)
- interpretation of change is not always obvious. For example, a reduction in income might be a good thing if pre-treatment income was derived from illegal activity. Similarly, an increased use of services following treatment might be positive if this use indicates the resolution of long standing problems.

Each of these life areas will be reviewed and examples presented of some of the typical indicators of status in that life area.

Legal Status

Relevance: One of the most consistent findings in substance abuse research is the statistical association between substance abuse and illegal behavior. There are at least two apparent links that contribute to this association. First, legal problems are often inherent in the use or abuse of a substance (e.g., driving while impaired, drinking under age, public intoxication, selling or using illegal substances). Second, illegal behavior such as theft or prostitution may be engaged in as part of the process of obtaining substances, particularly expensive illegal drugs such as cocaine.

Regardless of reasons, there appears to be a high rate of substance abuse among criminal populations as is evidenced by the high rate of referrals into treatment from corrections. According to a 1988/89 survey of Ontario addictions treatment programs (Rush & Tyas, 1990), approximately 11% of all referrals to addictions treatment were from corrections, and an additional 4% were from police. Moreover, the reduction of legal problems has been one way that the cost-effectiveness of addictions treatment has been demonstrated (Schwartzentruber, 1980).

Typical Measures: Although many assessment instruments solicit a great deal of detail concerning legal status and problems (when it is applicable to the person), outcome measures derived from these assessments tend to be fairly simple. The most common measure is the number of arrests or number of legal charges incurred by the client during a specific time period such as the past 3 months, 6 months, or 12 months (e.g., Hubbard et al., 1989). Sometimes alcohol-related arrests are distinguished from non-alcohol-related arrests (Annis & Liban, 1980; Cooper, Sobell, Maisto, & Sobell, 1980; Shaw, Waller, McDougall, MacGarvie, & Dunn, 1990). Using arrests or legal charges as a measure has the advantage that these are events that the person should be able to remember and report accurately. However, number of arrests may not be an accurate measure of illegal behavior, since not all illegal acts result in arrest. Therefore, some studies have used number of offenses committed (Hubbard et al., 1989) or number of days that the client engaged in illegal activity over a specific time period (Woody, McLellan, Luborsky, & O'Brien, 1990). Finally, in a study of clients admitted to recovery homes, Schwartzentruber (1980) used number of times in court and number of weeks incarcerated as measures of legal involvement in order to calculate legal costs incurred before and after treatment. Rating scales or composite scores of severity of legal problems have also been used (e.g., Addiction Severity Index (McLellan, Luborsky, Woody & O'Brien, 1980; Stoffelmayr & Mavis, 1990), Behavior Rating Scale (Brandsma, Maultdry & Welsh, 1980)).

Reliability and Validity: The most readily available source of information regarding legal charges and illegal behavior is self-report from the client. Evidence to date indicates that self-report is also the most *valid* source of information, if the circumstances are such that confidentiality is assured and clients have not been using alcohol or drugs during the proceeding 24-hours. For pre- and post-treatment comparisons, care should be taken to ensure that conditions for openly disclosing illegal activities are the same at both time periods. Current evidence indicates that when alcohol abusers report documented alcohol-related events such as arrests and incarceration, their reports typically agree with official data or indicate *more* events than listed in official records, presumably reflecting inaccuracies in the records rather than the reports (see Polich, 1982; also reviews by Bonito, Nurco & Shaffer, 1976; Maisto, McKay, & Connors, 1990; O'Farrell & Maisto, 1987). In addition, studies have found about 90% agreement between alcohol abusers' reports of alcohol-related events compared with collateral reports of the same events (O'Farrell & Maisto, 1987). Self-report of illegal activities also appears to be valid for narcotic addicts (Amsel, Mandell, Matthias, Mason, & Hocherman, 1976).

Responsivity or Sensitivity to Change: Measuring outcomes in terms of illegal behaviors or illegal status is most appropriate for client populations for whom legal problems are fairly frequent. In addition, composite scores or scales that reflect legal consequences (e.g., being on probation, court appearances) rather than illegal behavior need to be used with caution as they may not be sensitive to changes in the client brought about by treatment (Marshman, 1990). For example, whether a client is still on probation or awaiting charges, trial or sentencing following treatment is a function of the judicial process rather than treatment progress.

Interpretation: The most common ways of measuring legal status (number of arrests or charges, number of days engaging in illegal activities, or number of offenses committed) tend to be fairly crude as they do not take into consideration the nature or seriousness of the offenses committed. In addition, there are no standard ways of defining improved or deteriorated status, since the desired outcome is no illegal behavior or legal charges. Where this is not achieved, however, there are no standards for defining what constitutes a *meaningful reduction* in legal charges or illegal behavior.

In terms of applicability across treatment populations, there appears to be no obvious bias inherent in legal measures typically used. The measures have been applied to both alcohol and drug abusers and both men and women. Although women commit fewer and different types of crimes than men (Annis & Liban, 1980; Blankfield, 1991), these approaches to measuring legal status seem to apply equally well. Studies of other specific populations have not been found, but legal status measures seem to be generally applicable.

Summary of Typical Measures

- **number of arrests**
- **number of legal charges**
- **number of alcohol or drug-related arrests**
- **number of offenses**
- **number of days that the client engaged in illegal activity**
- **number of times in court**
- **number of days/weeks incarcerated**
- **number of days/weeks incarcerated for alcohol or drug-related offenses**
- **composite score (e.g., Addiction Severity Index, Behaviour Rating Scale).**

Employment Status

Relevance: A substantial proportion of clients entering addiction treatment have vocational or employment problems (Plant, 1981; Rush & Tyas, 1990). The extent to which improved vocational functioning is an objective of treatment, however, varies for different types of programs (Rush & Tyas, 1990). Nevertheless, it is an area generally considered relevant to initial assessment for treatment and is often measured as part of outcome assessment (see Lettieri, Nelson, & Sayers, 1985).

Typical Measures: The most common definition of employment status used in addictions treatment outcome studies seems to be whether the person was employed. This has often been expressed as the number of weeks/days employed (usually full- or part-time) during a set period (e.g., 12 months following treatment) (Anderson, 1978; French, Zarkin, Hubbard, & Rachal, 1991; Maisto et al., 1985; Schwartzentruber, 1980; Shaw et al., 1990). Other outcome studies have used measures of job problems such as: number of days lost due to drinking in a set time period (Anderson, 1978), and number of warnings received at work related to alcohol use (Malla, 1987). Other measures that have been used especially in the evaluation of Employee Assistance Programs or Occupational Health Programs include number of sick days, number of injured days, and job performance (Walsh et al., 1991; see reviews by Jones & Vischi, 1979 and Kurtz, Googins, & Howard, 1984). Emrick and Hansen (1983) suggested that measures of employment status should also include the client's perception of employment problems and the client's perception of need for employment counselling.

Since paid employment is not necessarily the goal of all persons who have vocational problems and measures of employment often do not include unpaid work (such as family responsibilities and volunteer work), some studies have used rating scales of general occupational functioning. (e.g., Wolber, Carne & Alexander, 1990).

Reliability and Validity. General questions regarding vocational functioning appear to be answered validly by self-report, provided interviews are conducted in a clinical or research setting, clients are assured of confidentiality, and are substance-free (O'Farrell & Maisto, 1987). The validity of job evaluation measures based on employer records, however, may vary because of poor documentation by employers and lack of standard measures (Kurtz, Googins, & Howard, 1984). According to Kurtz et al. (1984) who reviewed a number of studies of occupational alcoholism programs, concrete measures such as attendance, days absent due to accident or illness, and job loss are more useful for measuring program success than are more subjective measures such as how well the client feels that he or she gets along with fellow workers.

Responsivity or Sensitivity to Change: For most programs, reducing or eliminating substance use is the major goal. In so far as a sober person is more employable than a non-sober person, employment status should improve overall. Most addictions programs, however, are unlikely to affect many other causes of unemployment such as lack of appropriate skills, high societal unemployment, and so on. Therefore, although employment status may be an important measure for programs that target this area particularly (e.g., some halfway houses), it is unlikely to be a sensitive measure of treatment impact for most programs.

Interpretation: For employment measures to be responsive in all populations, consideration needs to be given to measuring status for all types of employment. Questions pertaining to homemakers' and unpaid workers' roles and responsibilities are often overlooked and yet are essential to a sensitive assessment for some populations.

Summary of Typical Measures

Employment measures that are currently in use are best suited to adult employable male substance abusers. These include:

- **whether employed during specified period (full and/or part-time)**
- **number of days/weeks employed during specified period (full and/or part-time)**
- **number of days of work lost due to drinking or drugs**
- **number of warnings received at work related to alcohol or drug use**
- **number of sick days**
- **number of sick days related to substance use**
- **number of injured days**
- **number of injured days related to substance use.**

Financial Status

Relevance: In so far as financial status or problems appear to be linked to substance use, this may be an area relevant for measuring outcome of addictions treatment. Usually financial status is measured as an indicator of social stability and is relevant only to treatment populations where social stability is an issue for a substantial proportion of clients. Even for socially stable clients, financial problems may be a consequence of substance use. For example, socially stable persons may spend too much on alcohol or drugs or fail to meet financial commitments because of substance use. These latter instances however, are probably better measured as part of alcohol or drug consequences than as a separate life area.

Typical measures: Given that financial status is closely tied to one's employment status, many of the comprehensive interviews available combine the two under the employment heading. Common measures of financial status are income and source of income. Typically clients are asked to report their annual family income (Anderson, 1978; Hubbard et al. 1989), as well as its source. Oppenheimer, Sheehan, & Taylor (1990) categorized income sources as: full-time employment, part-time employment, not available for work (in school, in prison or in a treatment centre), social assistance, drug sales, and prostitution. Other studies have rated financial status according to socio-economic status defined either by income level or occupational categories (Heather, Kissoon-Singh, & Fenton, 1990; Kivlahan, Sher, & Donovan, 1989; Webb & Unwin, 1988). Consideration of the client's expenditures, such as food and housing costs, other living expenses, medical bills and amounts spent on drugs has also been used to better describe the client's financial situation (Hubbard et al., 1989). Finally, whether the person was on social assistance or number of weeks on social assistance during a particular time period has been used to evaluate cost-effectiveness of treatment (Schwartzentruber, 1980).

Reliability and Validity: Self-reports are the most common means of assessing financial status. As noted previously, recent reviewers (Maisto et al., 1990; Sobell & Sobell, 1990) have concluded that the self-reports of substance abusers are generally accurate if data collection is conducted appropriately. This seems likely to be true for reporting of income, but there has been little research specifically looking at measurement of this life area.

Responsivity or Sensitivity to Change: Financial well-being is not necessarily an area that can be changed by addictions treatment. Economic conditions external to the person and the skills and education of the person are not likely to change because the person stops or reduces substance abuse. On the other hand, reducing substance abuse may help a person to use his or her skills more effectively, find employment or more lucrative employment, manage finances better, and reduce expenditures on alcohol and drugs.

Interpretation: There is very little research on the usefulness of measuring financial status as an outcome of addictions treatment. However, as noted by several women managers of addictions treatment programs in Ontario, a positive change in financial status may not be an expected outcome of treatment for women. First, women appear to be less likely than men to have control over their income. For example, the financial status of women who have child care responsibilities may reflect the husband's income or family assistance income. Child care responsibilities may also make it more difficult for women to receive training to upgrade their skills. In addition, there are other circumstances where positive treatment outcomes may not be associated with improved financial status - such as instances where stopping substance abuse includes discontinuing activities that provide illicit income.

Summary of Typical Measures

More information on the meaning and measurements of financial status is needed for this life area to be a useful outcome measure for addictions treatment. Although typical measures can be assessed validly, these measures are not clearly interpretable, especially for some client populations. Usual measures are:

- **income (in dollars) [illicit & licit]**
- **source(s) of income [illicit & licit]**
- **whether on social assistance**
- **number of weeks on social assistance**
- **amount spent on alcohol or drugs.**

Accommodation Status

Relevance: Accommodation problems are relevant to some clients of addictions treatment. For example, some substance abusers may be forced to relocate frequently, reside in treatment facilities, or be dependent on others for accommodation because of substance abuse.

Typical measures: The two most common measures of accommodation status used in addictions research are questions regarding the client's type of housing (e.g., house, apartment, rooming or boarding house, prison, treatment centre, other) (MacKenzie, Funderburk, Allen, & Stefan, 1987; Oppenheimer et al., 1990; Sanchez-Craig & Walker, 1982; Tarter, 1990), and stability of residence (time in present accommodation, longest duration stayed at a particular residence, number of moves during a particular time period) (Edwards et al., 1988; Mackenzie et al., 1987; Ogborne, 1990; Webb & Unwin, 1988). Sometimes, number of moves as a result of alcohol or drug use is measured as a separate category (e.g., Cross-Study Shared DataBase Follow-Up Interview, Clinical Institute).

Reliability and Validity. Given that the questions used to define a clients' accommodation status are straightforward and concrete, programs can be fairly confident in their reliability and validity. Furthermore, since the questions are not particularly intrusive or memory-taxing, there is no reason to expect a client to provide false information. However, social desirability may influence responses (e.g., a person may be embarrassed to admit to certain living circumstances); therefore, as with other measures, information regarding accommodation should be obtained under accepting circumstances where the client is assured of confidentiality.

Responsivity or sensitivity to change: A client's place or duration of residence may not necessarily be affected by addictions treatment or may only be affected over the long-term. External factors such as lease agreements, prison terms, and financial status can restrict the client's ability to change. However, a reduction in substance use may help the client to become a more responsible resident and may free up money (used previously on drugs) for independent living.

Interpretation: Usually type of housing and frequency of moves are interpreted as measures of social stability. These measures capture a continuum of social stability with long-term residence in one's own home being the highest level and "no fixed address" being the lowest. As with financial status, interpretation of accommodation status measures may be problematic when used with youth, women, or other groups who are more likely to be in dependency situations with less control over accommodation.

Summary of Typical Measures

It has not been clearly established that accommodation measures provide interpretable outcome measures for all or even most clients of addictions treatment programs. Nevertheless, these measures can provide useful information for some types of clients, particularly those experiencing accommodation instability before treatment. Usual measures include:

- **type of current housing**
- **number of moves in a specified time period**
- **longest duration at one address**
- **duration at current address**
- **number of moves as a result of alcohol or drug use**
- **other living circumstances (such as with whom the client is living).**

Use of Other Services

Relevance: Substance abusers tend to have a high rate of use of other types of services (e.g., hospital/medical, social services). Therefore, some evaluations have attempted to demonstrate a decrease in the use of services following treatment to demonstrate the client's improved status (see review by Jones & Vischi, 1979) or to assess cost-effectiveness of treatment (Schwartzentruber, 1980). In addition, use of other services may be measured in order to interpret other indicators of the client's outcome at follow-up. For example, if a client is abstinent at follow-up, the program would be interested in determining whether this is a result of treatment received from the program conducting the follow-up, is a result of other subsequent addiction treatment received by the client, or is perhaps a consequence of a health crisis precipitated by alcohol use. Although it may be impossible to ascertain the cause of the successful outcome, knowledge that the client has received a number of additional services during the post-treatment period would certainly indicate caution in attributing success to the index treatment program.

Typical Measures: Although some studies have included data from public or program records, it is also common to ask clients directly what services they have received. The intended use of the measure usually determines the level of detail of measurement. For example, in terms of measuring client status, number of admissions to hospital may be adequate. On the other hand, for cost-effectiveness studies, number of days in hospital may provide a better estimate of cost. Most studies have employed three global categories of services used: addictions-specific, medical/hospital, and social (covering a broad range of services).

The most common measures of use of addictions-specific services have been whether client entered a treatment program, number of admissions to a treatment program (including detox), and length of stay in treatment (Annis & Liban, 1980; Hubbard et al., 1989; Lehman, Barrett, & Simpson, 1990; Maisto et al., 1985; Schuckit, Morrison, & Gold, 1984; Schwartzentruber, 1980; Zweben et al., 1988).

Common measures of use of hospital/medical services have included number of hospitalizations, number of days hospitalized, and number of health care encounters (Fink et al., 1985; Maisto et al., 1985; Schwartzentruber, 1980; Shaw et al., 1990; Zweben et al., 1988; see also reviews by Emrik & Hansen, 1983 and Jones & Vischi, 1979). Other measures have included number of visits to a hospital emergency ward (Schwartzentruber, 1980 and number of days of medical problems (Woody et al., 1990). Some studies have included whether use of medical services was related to alcohol or drug use (Cross-Study Shared Database Follow-up Interview (Clinical Institute); Maisto et al., 1985).

Use of general social services has shown the least consistency of measures. Some assessment instruments reproduced in Lettieri, Nelson and Sayers (1985) included questions on the use of social services; however, no common method for measuring these services seems to have appeared in the literature.

Reliability and Validity: No studies validating self-report of the use of other services were located. Common sense would suggest that validity of responses would depend not only on the use of appropriate interviewing circumstances (as with other measures), but also on the thoroughness and clarity of the questions. This is an area where more systematic research is needed.

Responsivity or Sensitivity to Change: A methodological question that has been raised concerns the time periods that should be compared to determine whether treatment intervention is associated with a reduction in service utilization (Jones & Vischi, 1979). The conventional use of one-year before-and-after time frame may underestimate the impact of treatment on use of services such as medical or social services. Given the assumption that a full reduction in utilization is unlikely to occur immediately following treatment but gradually over time, the use of one-year time blocks may not be sufficiently sensitive to measure the full impact of addictions treatment on service use.

Interpretation: A number of factors other than the treatment process itself may contribute to use of other services following addictions treatment (Jones & Vischi, 1979). In addition, there are various circumstances where positive treatment outcomes may be associated with an *increase* in use of services. For example, subsequent to addictions treatment at one program, a client may seek additional treatment to *prevent relapse*. Another example is clients using medical or social services following addictions treatment in order to address longstanding problems. In sum, while measuring use of other services provides important outcome information, this information must be interpreted cautiously, taking into consideration other relevant factors.

Summary of Typical Measures

- **whether client attended another addictions treatment program**
- **number of days following discharge from initial program before admitted to another program**
- **number of admissions to addictions treatment**
- **length of stay (or number of sessions) in addictions treatment**
- **number of hospitalizations**
- **use of self-help groups**
- **use of general counselling services**
- **number of days hospitalized**
- **number of health care encounters**
- **number of visits to a hospital emergency ward**
- **number of days of medical problems.**

Global Social Stability Measures

Sometimes measures of legal status, employment and so on are combined to provide a measure of global social stability. Skinner (1981) developed a five-item measure of social stability consisting of the following items: nature of residence (2. apartment/house, 1. room, 0. other), frequency of family contact (2. daily, 1. weekly, 0. other), return to live with family after treatment (2. yes, 1. maybe, 0.no), regular employment in past year (2. employed, 1. employed 6-11 months, 0. other), and job at present (2. yes, 1. maybe, 0. no). This index has been subjected to some validation and has been used extensively with addictions populations.

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PART V. MEASURES RELATED TO TREATMENT RESPONSE

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PART V. MEASURES RELATED TO TREATMENT RESPONSE

Treatment response measures, although technically not "outcome" measures, provide useful information for interpreting program services and effects. Treatment response measures provide a bridge between process measures (i.e., what the program does) and outcome measures (i.e., what happens to the client following treatment).

The following are typically included as treatment response measures: client satisfaction/client feedback measures, treatment completion/attendance, aftercare attendance, and any other indicators of the clients' responsiveness to the program. The logic of using these measures is as follows: If the interventions provided by program staff are intended to reduce substance abuse, this reduction in substance abuse is more likely if the client receives the complete intervention (i.e., program completion, aftercare attendance measures). Similarly, the client is more likely to attend the program and receive the intervention if he or she finds the intervention and the program generally to be appropriate and valuable (i.e., client feedback measures). Thus, measures of treatment response might be construed as measures of intermediate outcomes.

Measurement of many of these areas is straightforward: attendance at treatment sessions (for outpatient treatment), completed treatment (for inpatient and outpatient), attendance at regular aftercare, attendance at A.A. The directory focuses on the more complex treatment response area, measuring client feedback.

Client Feedback

The focus of client feedback measures is on evaluating the client's *perceptions and satisfaction* with a program in terms of adequacy, quality and appropriateness of services, not on evaluating objective changes in a client's life as a result of treatment. Information obtained from clients regarding their experiences in the program can be used to improve the program's sensitivity to the needs of their clients.

Clients can provide valuable feedback on program delivery, and obtaining client feedback is often a routine part of the program. Some precautions need to be taken, however, in collecting and interpreting the feedback in order to obtain accurate and unbiased information.

Multidimensional Client Feedback Measures

The best client feedback measures are multidimensional - that is, they ask the client for information about specific aspects or components of the program. For example, a program that includes 12 steps, vocational counselling and assertiveness training would ask clients for feedback on each of these components. If possible, feedback should be even more specific within these components. For instance, if vocational counselling involves skills training, films, and aptitude assessment; feedback should be sought on each of these. In sum, the most useful kind of feedback relates to *specific aspects* of the program. This helps to identify those aspects of the program that are well-received by clients and those that clients find unsatisfactory.

Of course, program components should also be evaluated on other criteria besides client feedback. In particular, it is important to evaluate the actual effectiveness of program components. For example, vocational counselling might be assessed by determining how many unemployed clients find work. Nevertheless, feedback from clients may be the first indicator that a particular aspect of a program is not working the way it should or is not meeting its objectives.

Unfortunately, no multidimensional client feedback measures have been standardized for use with addictions treatment programs. Moreover, most programs need to construct or at least customize their own client feedback measures to meet their specific information needs. Therefore, guidelines for constructing a customized client feedback measure and examples of client feedback measures used by addictions programs are provided in the Supplement to this part (Part V) of the directory.

Global Outcome Measures

Global outcome measures assess general feedback from the clients. Such measures are not as useful for program improvement as multidimensional measures, but they can provide a standard format for making comparisons regarding overall client satisfaction.

For example, data obtained from a standardized global client feedback measure can be used for:

- comparing client satisfaction with a program from year to year (a large drop in satisfaction from one year to the next might indicate that something is going wrong; alternatively, a large increase might indicate that recent program modifications were useful; or finally, changes in satisfaction ratings may indicate changes in the client population from one year to the next)

- comparing different treatment programs within an agency with regard to client satisfaction (these data may provide information about program delivery and/or client characteristics and expectations)

- comparing different client groups within a program with regard to their perceptions of the program (e.g., younger versus older clients, clients who differ in the nature and severity of their problems)

The limitations of global satisfaction measures, however, should also be recognized. They are more likely to be positively biased than multidimensional measures in that clients may be willing to criticize a particular aspect of a program but not be willing to criticize the overall program. In addition, global measures are unlikely to contain information that identifies specific areas of the program that need improvement.

Nevertheless, a standardized approach to measuring client feedback can be useful if its limitations are recognized and results are interpreted cautiously. The following section describes one of the most commonly used client satisfaction questionnaires, the CSQ-8. The CSQ-8 (Larsen, Attkisson, Hargreaves, & Nguyen, 1979) has been the focus of validation research across a range of types of programs and has been recommended for the addictions field (Lettieri, Nelson, & Sayers, 1985; Moos & Finney, 1988).

The Supplement to Part V provides guidelines for constructing a client feedback measure and some examples of client feedback measures used by addictions treatment programs.

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Measure: Client Satisfaction Questionnaire (CSQ-8)

The CSQ-8 is a standard global measure of client feedback. Some of its strengths are its brevity, availability, ease of scoring and high internal consistency. Relationships with other variables and outcome measures provide some support for the validity of the scale. Since it is a global measure, assessment of satisfaction along specific program dimensions is weak. Therefore, construction of supplemental questions relevant to individual programs is recommended. The CSQ-8 is applicable to males and females from a variety of clinical populations. No studies were found regarding its use with youth, the elderly or specific cultural groups.

Client Satisfaction Questionnaire (CSQ-8)

Please help us improve our program by answering some questions about the services you have received. We are interested in your honest opinion, whether they are positive or negative. Please answer all of the questions. We also welcome your comments and suggestions. Thank you very much, we really appreciate your help.

CIRCLE YOUR ANSWER

1. How would you rate the quality of service you received?

4	*3*	*2*	*1*
Excellent	*Good*	*Fair*	*Poor*

2. Did you get the kind of service you wanted?

4	*3*	*2*	*1*
No, definitely not	*No, not really*	*Yes, generally*	*Yes, definitely*

3. To what extent has our program met your needs?

4	*3*	*2*	*1*
Almost all of my needs have been met	*Most of my needs have been met*	*Only a few of my needs have been met*	*None of my needs have been met*

4. If a friend were in need of similar help, would you recommend our program to him or her?

4	*3*	*2*	*1*
No, definitely not	*No, not really*	*Yes, generally*	*Yes, definitely*

5. How satisfied are you with the amount of help you have received?

4	3	2	1
Quite dissatisfied	*Indifferent or mildly dissatisfied*	*Mostly satisfied*	*Very Satisfied*

6. Have the services you received helped you to deal more effectively with your problems?

4	3	2	1
Yes, they helped a great deal	*Yes, they helped somewhat*	*No, they really didn't help*	*No, they seemed to to make things worse*

7. In an overall, general sense, how satisfied are you with the service you have received?

4	3	2	1
Very Satisfied	*Mostly satisfied*	*Indifferent or mildly dissatisfied*	*Quite dissatisfied*

8. If you were to seek help again, would you come back to our program?

4	3	2	1
No, definitely not	*No, I don't think so*	*Yes, I think so*	*Yes, definitely*

Scoring: Scores are summed across items, once items 2, 4, 5, and 8 are reverse scored. Total scores range from 8 to 32, with the higher number indicating greater satisfaction.

Note. Reprinted with permission from C.C. Attkisson (1991). The CSQ was developed by C.C. Attkisson et al. at the University of California, San Francisco, Department of Psychiatry. Use for non-profit research and evaluation purposes is permitted. All other uses by prior permission and user fee, without exception.

Detailed Review of the Client Satisfaction Questionnaire (CSQ-8)

Original Publication:

Larsen, D.L., Attkisson, C.C., Hargreaves, W.A., & Nguyen, T.D. (1979). Assessment of client/patient satisfaction: Development of a general scale. *Evaluation and Program Planning, 2,* 197-207.

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Description: The CSQ-8 measures general feelings of satisfaction with the services provided by a program. The CSQ was originally constructed as a 31-item questionnaire intended to be sensitive to client satisfaction with specific program dimensions. Results of factor analyses of the questionnaire, however, indicated that it tapped mainly overall satisfaction which could be assessed almost equally well using a subset of only eight items. Four-option, labelled response formats are used to rate each item, with "1" indicating low satisfaction and "4" indicating high satisfaction. The ordering of response options is balanced across items to reduce the possibility of acquiescent responses (e.g., circling all the 4s).

The CSQ-8 has been used with a wide variety of client groups, including self-help groups (Kurtz, 1990), community mental health programs (Larsen, Attkisson, Hargreaves, & Nguyen, 1979), parents of children receiving psychiatric services (Kotsopoulos, Elwood, & Oke, 1989), and recipients of health care services (Greenfield & Attkisson, 1989).

Target Populations: The CSQ-8 is applicable to recipients of social, psychiatric, mental health, and health care services.

Administration: The CSQ-8 has primarily been used as a self-report instrument, but has also been administered in interview contexts. The scale takes 3-5 minutes to complete.

Reliability and Validity of the Scale

Reliability: The CSQ-8 has shown good to excellent internal consistency across several studies with reported values of Cronbach's *alpha* ranging from .78 to .93.

Validity: The CSQ-8 was derived from the CSQ-31 which was developed on the basis of a review of the literature on client satisfaction. Items included on the CSQ-31 were then rated according to relevance and clarity, by two separate groups of mental health professionals. Although items ultimately selected for the CSQ-8 were more general, the CSQ-8 reflects this initial grounding in the literature on client satisfaction.

Larsen (1979) administered the CSQ-8 to a sample of mental health outpatients as part of a therapy outcome study. The validity of the CSQ-8 was supported by significant relationships with other variables that were predicted to be related to client satisfaction; namely, clients who dropped out of a mental health program ($r = -.37$) and those who missed more appointments ($r = -.27$) had lower CSQ-8 scores. Self-ratings of global improvement correlated significantly ($r = .53$) with CSQ-8 ratings. Others have reported similar findings (Nguyen, Attkisson, & Stegner, 1983; Zwick, 1982). Nguyen et al. (1983) also reported a moderate correlation between clients' scores on the CSQ-8 and therapists' estimates of how satisfied they believed their clients to be ($r = .56$).

In a study where the CSQ-8 was used with a sample of clients from a self-help association, Kurtz (1990) found support for the relationship between satisfaction and outcomes, with client satisfaction significantly related to the client's perception of improved coping ($r = .48$). Nguyen et al. (1983), however, found mixed support for a relationship between client satisfaction and client outcomes, with client satisfaction related to some outcomes but not others. Since research has not thoroughly examined the true relationship between client satisfaction and outcomes, the implication of these findings for the validity of the CSQ-8 is not clear. It may well be that a valid measure of client satisfaction would be positively related to some measures of outcome and not with others.

The measure is included in addictions treatment evaluation sourcebooks and articles (Lettieri, Nelson, & Sayer, 1985; Moos & Finney, 1988), and appears to be generally appropriate for use by addictions treatment populations.

Other Forms: Although the CSQ-8 is by far the most commonly used satisfaction scale, two longer versions (the CSQ-18A and CSQ-18B) have been used, primarily in research contexts (Levois, Nguyen, & Attkisson, 1981). The CSQ-8 has been translated into Dutch (de Brey, 1983), French (Sabourin & Gendreau, 1988), and Spanish (Roberts, Attkisson, & Stegner, 1983).

Availability: The scale may be used at no cost in non-profit research and evaluation studies. The authors request, however, that if the scale is to be used in a for-profit context that a contribution be made to the research program at the University of California, San Francisco. Interested persons may contact Dr. Attkisson directly regarding the appropriateness of using the questionnaire in their particular setting.

CSQ8. Scale Validation Samples and Norms

Study	Sample Type	Age	Males	Females	Total N	Average CSQ-8 Score
Kurtz (1990)	Mental health patients	*	64	120	184	24.1
Larsen (1979)	Mental health outpatients	*	*	*	49	*
Nguyen et al. (1983)	Mental health patients	*	*	*	3120	27.1
Zwick (1982)	Mental health patients	*	*	*	45	24.2

Note. * indicates no values reported.

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Supplement to Part V:

Constructing Customized Client Feedback Measures for Specific Programs

It seems unlikely that a general measure of client satisfaction will perfectly meet the needs and interests of all programs. This is particularly true for addictions programs which vary widely in terms of their mandates, focus, and structure. Therefore, until more standardized approaches become available, it is necessary for programs to develop their own questionnaires to obtain client feedback relevant to each program's objectives.

In developing questions specifically relevant to their own services, programs may wish to start by using open-ended response formats for a small group of clients or even individual or group interviews. These strategies can help to identify issues or dimensions most relevant to clients of their particular program. Based on these responses, they could construct closed-ended questionnaires that are more easily scored.

Client feedback questionnaires are often constructed to meet the program's information needs. To ensure that the client's perspective is also reflected in the questionnaire, past and current clients could assist in developing questions that might sensitively assess clients' satisfaction with a program. The following provides some background for program staff to consider in constructing a measure of client feedback that fits the needs of their own program.

Multidimensional Measures Are Better

Although global measures of client satisfaction (such as the CSQ-8) can be used for some purposes and provide a degree of standardization across different types of programs, multidimensional measures provide the best feedback for *improving* programs. A sensitive multidimensional measure of client feedback should assess all components identified as integral to the functioning of a program and should assess aspects of the program about which changes are being considered. Program staff, for example, might be interested in assessing client feedback about the following program dimensions:

- different components of the program (orientation, assessment, intake, treatment, follow-up)

- comprehensiveness and continuity of the services provided

- how effectively and sensitively program staff carry out their roles

- physical environment.

Obtain Balanced Feedback

In addition to seeking feedback on many aspects of a program rather than just global feedback, the following strategies can help to insure that feedback is balanced and useful:

- use an extended range of responses (e.g., 7-point scale) rather than a yes/no format

- use balanced endpoint anchors. For example, clients could be asked to rate their satisfaction with a program component on a seven-point scale where "1" is "not satisfied" and "7" is "very satisfied". Alternatively, the scale could be anchored as "1-very dissatisfied" to "7-very satisfied". The second set of anchors allows more room for negative ratings and results in a more balanced scale.

- have clients complete questionnaires some time after they have completed the program (or both at discharge *and* at later follow-up if possible)

- use anonymous self-report questionnaires, where possible, or have client feedback obtained from someone not directly involved with the program

- indicate to clients that their responses will be most helpful in improving the program if they are as honest as possible

- obtain information from program dropouts and from people who refuse aftercare.

In "probing" for dissatisfactions, questions that ask about the recommendations clients would make about changing the program could be included on a measure of client satisfaction. Clients who dropped out of the program could also be followed up to find out how the program could have better met their needs. In addition, a broader perspective could be obtained by approaching other sources such as relatives and referral sources about the relative effectiveness of a program and possible changes that could be introduced in a program. Finally, other program data can be used to help estimate how much confidence should be placed in high levels of reported client satisfaction. For example, other measures of the acceptability of a program include attendance, dropout rates and referral rates.

One goal of a client feedback questionnaire may be to demonstrate to program funders that the program is doing well. A second, probably more legitimate, use of such questionnaires is to obtain feedback that can help determine whether a program is meeting its objectives and identify areas where the program needs to be improved. Therefore, questionnaires should be carefully constructed to obtain information that is useful for and likely to be used by the program. Several examples of client feedback questionnaires that have been used by addictions treatment programs are provided in the following section.

Sample Questions from Client Feedback Questionnaires Used by Addictions Programs

EXAMPLE 1. Ratings about different aspects of a program (Hamilton Women's Detox)

Please check the box at the end of each question that best reflects your impression of the detox:

	Never	Rarely	Sometimes	Often	Always	Not Applicable
1. The staff tried to understand my problems.	☐	☐	☐	☐	☐	☐
2. The information and advice that staff gave me were helpful.	☐	☐	☐	☐	☐	☐
3. The staff helped me feel better physically while drying out.	☐	☐	☐	☐	☐	☐
4. Information about me was kept confidential.	☐	☐	☐	☐	☐	☐
5. I was pleased with the way staff treated me.	☐	☐	☐	☐	☐	☐
6. During the day, I could see staff when I needed to.	☐	☐	☐	☐	☐	☐
7. At night and on weekends, I was able to see staff when I needed to.	☐	☐	☐	☐	☐	☐
8. The meals were satisfactory.	☐	☐	☐	☐	☐	☐
9. The detox was comfortable.	☐	☐	☐	☐	☐	☐
10. The detox was clean.	☐	☐	☐	☐	☐	☐
11. I felt safe in the detox.	☐	☐	☐	☐	☐	☐
12. The staff treated me with dignity and respect.	☐	☐	☐	☐	☐	☐
13. The staff were friendly and supportive.	☐	☐	☐	☐	☐	☐
14. There is enough space to be alone or to talk privately with staff.	☐	☐	☐	☐	☐	☐
15. The type of help I was looking for was provided.	☐	☐	☐	☐	☐	☐
16. The staff handled it well when someone had to be sent to hospital.	☐	☐	☐	☐	☐	☐
17. The staff handled it well when there were fights or trouble.	☐	☐	☐	☐	☐	☐
18. The staff made me feel welcome.	☐	☐	☐	☐	☐	☐

EXAMPLE 2: **Ratings of program components (patient evaluation of treatment program), (Mobert & Zupek, 1985)**

Rate each of the following aspects of the treatment program using the following scale:

0 - Not applicable
1 - Very unsatisfactory
2 - Unsatisfactory
3 - Only somewhat satisfied
4 - Satisfactory
5 - Very satisfactory

1.	AA/NA Orientation	0	1	2	3	4	5
2.	Educational Seminars (8:00-8:45 a.m.)	0	1	2	3	4	5
3.	Group Therapy	0	1	2	3	4	5
4.	Individual Counselling	0	1	2	3	4	5
5.	Spiritual Care (religious services, counselling from chaplains, etc.)	0	1	2	3	4	5
6.	Occupational Therapy	0	1	2	3	4	5
7.	Recreational Activities (free time)	0	1	2	3	4	5
8.	Community Outings	0	1	2	3	4	5
9.	Medical (doctor's) Care	0	1	2	3	4	5
10.	Nursing Care	0	1	2	3	4	5
11.	Work with your family	0	1	2	3	4	5
12.	AA/NA Beginners classes (Saturday 10:00 a.m. group)	0	1	2	3	4	5
13.	AA/NA Step Groups	0	1	2	3	4	5
14.	Relaxation Therapy	0	1	2	3	4	5
15.	Men's Group	0	1	2	3	4	5
16.	Women's Group	0	1	2	3	4	5
17.	Exercise Group	0	1	2	3	4	5
18.	Video Tape Therapy	0	1	2	3	4	5
19.	Older Adults Group	0	1	2	3	4	5

EXAMPLE 3: **Questions about whether client's needs were met ((a) Detox Group - ARF Program Evaluation Course, 1990; (b) Hamilton Women's Detox)**

(a) *What were your needs upon admission?* *Were these needs met?*

	No	Yes	If YES	No	Partly	Yes
food	1	2	→	1	2	3
shelter	1	2	→	1	2	3
personal safety	1	2	→	1	2	3
support	1	2	→	1	2	3
medical attention	1	2	→	1	2	3
shower/bath	1	2	→	1	2	3
other___________	1	2	→	1	2	3

(b) *Please check one or more answers to fill the space beside the question.*

The most helpful information that I got was about:

my feelings _________

family or sexual problems _________

the drug/alcohol problem _________

housing _________

treatment choices _________

social agencies _________

counselling _________

health problems _________

none of the above _________

EXAMPLE 4: Recall of treatment components at follow-up* (M.B. Sobell & L.C. Sobell, "Problem Drinkers: Guided Self-Management Treatment", Guilford Press, In press).

First, ask subjects to describe as best they can what the treatment involved. For features they mention, write R (recalled) in the appropriate blank. After they have finished with their description, then ask them if they happen to recognize any of the features that they failed to mention spontaneously. Preferably, do this by asking questions, e.g., "Do you remember how many session the treatment involved?" If they say "Yes", probe a little (only a little) to be sure they really do remember, and for those they recognize write P (prompted memory). For features not recalled, write N (no memory).

1. Two formal sessions ________
2. Readings ________
3. Homework Assignments ________
4. Self-selected goal ________
5. Triggers ________
6. Problem-solving strategy (options, evaluation, action plan) ________
7. For specially selected people (not severely dependent) ________

Note. This is a slightly different approach to client feedback than typically used. It provides information about the specific aspects of a program that the client remembers. Although not specifically assessing how satisfied clients were, this approach does indicate those aspects of the program that had sufficient impact on the clients for them to remember them at long-term follow-up.

EXAMPLE 5: Retrospective rating of usefulness of program components (Second Year Follow-Up Interview - Guided Self-Management Study)

We recognize that many things could have happened to people over the two years of follow-up that had nothing to do with the treatment. The following questions largely concern the effects that specific features of the treatment had on you. Please answer so as to describe the effects the treatment had on you apart from other events that may have happened in your life (e.g., if the treatment helped you but you were later laid off from work and redeveloped a drinking problem, the treatment should be rated as helpful despite your having an unfavourable end result).

Rate the value of each of the following features of treatment using the following 4-point scale:

1 = Not helpful
2 = No opinion
3 = Helpful
4 = Very helpful

____ 1. Assessment

____ 2. Therapist

____ 3. The readings (two handouts)

____ 4. Homework assignments

____ 5. Problem-solving approach (identifying triggers and consequences, evaluating options, using action plans)

____ 6. Emphasis on doing it on my own (using my own strengths and resources)

____ 7. Self-selection of drinking goals

____ 8. Availability of further treatment if desired

____ 9. Follow-up contacts

____ 10. Follow-up worker

APPENDICES

Appendix A.

Annotated Bibliography of Resources on Evaluation and Measurement 1

Appendix B.

Members of the Ontario Working Group to Develop a Directory of Outcome Measures for Addictions Treatment Programs 12

Appendix A.

Annotated Bibliography of Resources on Evaluation and Measurement

Addiction Research Foundation. (1991). ***Youth & Drugs: An Education Package for Professionals.*** **Toronto.**

This educational resource package was devised to help anyone in regular contact with youth identify and effectively respond to drug use problems. The package is organized into five sections: 1) Adolescent Development, 2) Drugs and Their Use, 3) Identification, 4) Assessment, and 5) Intervention and Treatment. Workbooks were developed for each of these sections, along with videotapes of case studies designed to complement the information and counselling tips presented in the workbooks. A book of readings on topics relevant to adolescence and youthful drug use is also included in the package. One article in this book discusses issues related to the assessment of adolescent drug use (several assessment measures are described). Options available for studying this material include self-study, taking a correspondence course (with teleconferenced classes, or tutor support), and classroom study. To order a self-study package or arrange to take a course, call (416) 595-6059, or call toll-free 1-800-661-1111.

Benishek, L.A. (1989). ***A summary of adolescent substance abuse assessment instruments.*** **Dept. of Psychiatry, Michigan State University, E. Lansing, MI. (32 pages)**

This document provides information on 12 substance abuse assessment instruments developed for adolescents. The measures are described with reference to: purpose, type and length of assessment device, life areas assessed, reading level, training required for administration, scoring, psychometric characteristics, norms, availability and price. Summaries are restricted to the presentation of general descriptive information that might form the basis of further exploration and selection of measures. The measures are not critically evaluated. Benishek suggests that people listed as "friendly users" can be approached for information on the practical strengths and limitations of the measures as used in actual program settings. Copies of the instruments are not provided in this document.

Busto, U.E., Sykora, K., & Sellers, E.M. (1989). A clinical scale to assess benzodiazepine withdrawal. Journal of Clinical Psychopharmacology, 9, 412-416.

This article describes the Clinical Institute Withdrawal Assessment - Benzodiazepines Scale (CIWA-B), which is a quantitative measure of withdrawal from benzodiazepine use. The CIWA-B consists of 22 items that describe withdrawal symptoms that are often experienced after discontinuing use of benzodiazepines. The CIWA-B can be used to assess physical dependence on benzodiazepines and might also be useful to detox staff for monitoring symptoms of withdrawal over several days. The CIWA-B has been validated for use with both therapeutic users and abusers of benzodiazepines. (See also Sullivan et al. (1989) for a description of a standardized measure of alcohol withdrawal).

California Society of Addiction Medicine. (August, 1991). ***Recommendations for design of treatment efficacy research with emphasis on outcome measures.***

This is a four page document that reflects the consensus of 70 experts polled by the California Society of Addiction Medicine regarding the assessment of outcomes. It provides a concise summary of many of the major issues.

Ciarlo, J.A., Brown, T.R., Edwards, D.W., Kiresuk, T.J., & Newman, F.L. (1986). ***Assessing mental health treatment outcome measurement techniques.*** **Rockville, MA: National Institute of Mental Health. (547 pages)**

The first chapters in this book discuss conceptual, methodological and practical considerations involved in selecting measures for outcome evaluation purposes. The remainder of the book consists of extensive reviews of 31 client outcome measures identified as being important measures in outcome evaluation research in mental health. These reviews provide detailed information on the measures, including target groups, data collection procedures, psychometric properties, and cost. A summary critique for each review notes the strengths and weakness of each instrument. Measures are not reproduced in this sourcebook.

Corcoran, K. & Fischer, J. (1987). ***Measures for clinical practice: A sourcebook.*** **New York: Pergamon Press. (482 pages)**

The 128 instruments included in this sourcebook cover a range of problem areas (e.g., anxiety, depression, eating problems, family functioning). The first part of the book provides a good, basic introduction to measurement that was designed to help in selecting and administering the instruments. In the second part of the book, the measures are organized into three categories: instruments for adults, instruments for children (and adolescents), and instruments for couples and families. (A listing of instruments by problem area is provided for easy cross-referencing.) Reviews of the different measures provide information on norms, scoring, reliability and validity, and availability. Most measures are brief and easily scored. Copies of the instrument are included with each review.

Donovan, D.M., & Marlatt, G.A. (Eds.) (1988). ***The assessment of addictive behaviors.*** **New York: Guilford Press. (497 pages)**

Intended for students, clinicians and researchers in the field of the addictions, this book brings together information on current approaches to the assessment of common addictive behaviors. The book begins with a general overview of issues related to the assessment of addictive behaviors. Subsequent chapters focus on the assessment of behavioral, cognitive and physiological aspects of alcohol dependence, eating disorders, smoking and drug use (cannabis, cocaine and heroin). Many of the assessment devices are reproduced and included in the text. Clinical case examples are also used to illustrate the assessment strategies described. Finally, the book concludes with chapters on treatment models used in the addictions, and the assessment of treatment outcomes and relapse.

Friedman, A.S., & Utada, A. (1989). A method for diagnosing and planning the treatment of adolescent drug abusers (The Adolescent Drug Abuse Diagnosis (ADAD) instrument). ***Journal of Drug Education, 19,*** **285-312.**

This article describes the development of the Adolescent Drug Abuse Diagnosis (ADAD) instrument. A 150-item structured interview (45 minutes), the ADAD is based on the Addiction Severity Index which is used with adults (see the entry for McLellan et al., 1980). The ADAD is intended for the purposes of diagnosis, treatment planning, and research. The instrument includes: nine adolescent life areas: medical, school, employment, social, family, psychological well-being, legal, alcohol problems and drug problems. Both global severity ratings (based on the interviewer's evaluation of the seriousness of reported problems) and composite scores (based on responses to items on the ADAD) are used to provide a comprehensive evaluation of a client. When used as an outcome measure, only questions that refer to the past 30 days or previous 3 months for legal problems are used for calculating pre- to post-treatment change scores (i.e., less than half of the items on the ADAD). Copies of the ADAD can be requested by writing to Alfred S. Friedman, Ph.D., Director of Research, Philadelphia Psychiatric Center, 4081 Ford Road, Philadelphia, Pennsylvania, 19131.

George, L.K., & Bearon, L.B. (1980). ***Quality of life in older persons: Meaning and measurement.*** **New York: Human Sciences Press. (238 pages)**

This book includes a total of 22 measures relating to four major life areas: life satisfaction, self-esteem, general health and functioning, and socioeconomic status. Discussion of each area includes theoretical and methodological issues as well as reviews of the measures. Copies of the measures are not included in the book.

Harrison, P.A., & Hoffman, N.G. (1989). ***SUDDS. Substance Use Disorder Diagnosis Schedule.*** **St. Paul, MN: Ramsey Clinic.**

The SUDDS is a structured diagnostic interview (30-45 minutes) which yields information for the diagnosis of alcohol and other drug dependencies using DSM-III-R Criteria. It uses objective event oriented questions and is scored using a Diagnostic Checklist. A computer administered interview is available. A video may also be rented ($40 U.S. for 30-day rental) for training staff using the interview [Available from CATOR/Ramsey Clinic, 17 West Exchange Street, St. Paul, MN 55102, (612) 221-2803 @$1.25 per interview set]. NOTE: Dr. Hoffman is also the Executive Director of the Chemical Abuse/Addiction Treatment Outcome Registry (CATOR) which provides a data entry and analysis service for assessment and follow-up data (same address as for the SUDDS).

Hersen, M., & Bellack, A.S. (Eds.) (1988). ***Dictionary of behavioral assessment techniques.*** **New York: Pergamon Press. (519 pages)**

This book includes reviews of 285 different assessment instruments used in behavior therapy and research. A wide range of assessment modalities are represented, including structured and semi-structured interviews, observational techniques, self-report, physiological and biochemical assessment. The instruments cover many psychosocial areas, such as aggression, anger, anxiety, depression, self-efficacy, social skills, suicidal ideation, marital relationships, and family functioning as well as the assessment of smoking, drug and alcohol use and eating disorders. Only descriptive summaries of the measures are provided (covering purpose, development, psychometric characteristics, and clinical use). Addresses are provided for requesting copies of the assessment instruments, but the measures themselves are not reproduced in this book.

Hubbard, R.L., Marsden, M.E., Rachal, J.V., Harwood, H.J., Cavanaugh, E.R., & Ginzburg, H.M. (1989). ***Drug abuse treatment: A national study of effectiveness.*** **Chapel Hill, N.C.: The University of North Carolina Press. (213 pages)**

This book summarizes the results of the Treatment Outcome Prospective Study (TOPS), a national multi-year study conducted in the United States. Over 10,000 drug users in outpatient methadone, residential, and drug free outpatient programs were assessed between 1979 and 1981, and the outcomes of different subsamples were monitored up to 5 years after program termination. The book describes the nature of treatment delivered and the clients served in the three treatment modalities, and presents evidence for the long-term effectiveness of drug abuse treatment. The cost effectiveness of drug abuse treatment and suggestions for improving treatment are also discussed.

Hudson, W.W. (1982). ***The clinical measurement package: A field manual.*** **Homewood, IL: Dorsey Press. (159 pages).**

The *Clinical Measurement Package* contains a total of 22 scales that measure depression, self-esteem, marital satisfaction, sexual satisfaction, the attitudes of a parent to a child, a child's attitudes to his or her mother/father, family relations and peer relations. The book includes copies of the instruments and describes each instrument's purpose in terms of assessment, monitoring clients, and evaluating clinical practice. Evidence for the validity and reliability of the scales is also presented. A trial set of the scales can be ordered by writing to Walmyr Publishing Company, P.O. Box 24779, Tempe, Arizona 85285-4779. Translations of the scales are available in Chinese, French, German and Spanish.

Institute of Medicine (1990). ***Broadening the base of treatment for alcohol problems.*** **Reports of a Study by a Committee of the Institute of Medicine, Division of Mental Health and Behavioral Medicine. Washington, D.C.: National Academy Press. (629 pages).**

This book is the result of a major consultative process undertaken by a committee of the U.S. Institute of Medicine. The report: 1) describes a vision for a more effective alcohol treatment system; 2) responds to a number of important questions about alcohol treatment (for example, "what is treatment?," "is treatment necessary?"); 3) considers issues related to the provision of treatment (for example, assessment, matching, and outcome determination); 4) examines issues of particular relevance to the provision of treatment to special populations; 5) addresses financing issues within the American treatment system; and 6) suggests opportunities for future leadership in the area of treatment for alcohol problems. A review of treatment modalities, treatment process variables, and treatment outcomes is included as an appendix to the main report. Another appendix contains a discussion of the issue of coercion in alcohol treatment.

Keyser, D.J., & Sweetland, R.C.(Eds.) (1984/1991). ***Test critiques (Vol. 1-8).*** **Kansas City, MS: Test Corporation of America.**

The *Test critiques* series is a comprehensive reference document that includes detailed reviews of numerous psychological and educational measures that are commonly used in research studies with adults, adolescents and children. Each review is organized under four headings: introduction (including historical development), practical applications/uses (target populations, administration, scoring and interpretation), technical aspects (validity and reliability), and overall critique. Copies of the tests are not included as part of the reviews.

Kirshner, B., & Guyatt, G. (1985). A methodological framework for assessing health indices. *Journal of Chronic Diseases, 38,* 27-36.

This article reviews development and selection of a quality of life index for three functions: discriminating among cases, predicting future outcomes, or evaluating change. The differing validation needs for each function are discussed with respect to the following aspects of instrument development: selection of the item pool, item scaling, item reduction, determination of reliability, determination of validity, and determination of ability to measure change (responsiveness).

Lettieri, D.J., Nelson, J.E., & Sayers, M.A. (1984). *Alcoholism treatment assessment research instruments.* NIAAA treatment handbook series. Rockville, Maryland: NIAAA. (564 pages).

The forty-five instruments contained in this handbook were selected to provide examples of measures used across all assessment phases, including follow-up. Descriptive summaries of the instruments include information on administration, design, assessment areas covered by the instrument, psychometric properties, related reports and availability. All instruments are reproduced in full.

Lettieri, D.J. (Ed.) (1988). *Research strategies in alcoholism treatment assessment.* New York: Haworth Press. (123 pages)

This edited volume includes discussion of a number of important issues related to alcohol treatment assessment research. The various chapters cover: an overview of practical issues and methods in alcoholism treatment assessment; measurement of alcohol use and related problems; specifying and evaluating treatment factors; assessing change after treatment for alcohol abuse; data collection for evaluating treatment outcomes; methods and issues in psychopharmacological studies; follow-up; and issues related to cost containment in treatment services. (This text was also published as *Drugs & Society, 2 (2),* 1987/1988.)

McDowell, I., & Newell, C. (1987). *Measuring health: A guide to rating scales and questionnaires.* New York: Oxford University Press. (342 pages).

Measuring health is an excellent source of information on 50 commonly used measures of health and psychosocial well-being. The specific content areas covered are: physical disability, psychological well-being, social health, quality of life, pain, and general health measurement. Each area is organized into 3 major parts: (1) a general introduction to measurement in the area; (2) reviews of selected scales and measures (including a discussion of the conceptual basis and psychometric properties of the scale, available alternate forms, a commentary on strengths and weaknesses, and a copy of the measurement instrument), and (3) a summary of the major measurement issues in the area. The information presented in this text is suitable for both practitioners and researchers. Guidelines for evaluating and selecting measures and a technical glossary of terms are included to assist the reader in considering the material presented.

McLellan, A.T., Luborsky, L., Woody, G.E., & O'Brien, C.P. (1980). An improved diagnostic instrument for substance abuse patients: The Addiction Severity Index. *Journal of Nervous and Mental Disorders, 168,* 26-33.

The Addiction Severity Index is a 30-40 minute intake interview designed to assess seven problem areas commonly associated with substance abuse. Objective questions are used to assess the number, extent, and duration of symptoms in the patient's lifetime and in the past 30 days. Two scores are calculated for each life area: (1) a rating by the interviewer of problem severity, and (2) a composite score based on selected items from each category. Instructional materials and videotaped interviews are available for 2-day training sessions from A.T. McLellan, Ph.D., Building 7, Philadelphia JAMC, Philadelphia, Pennsylvania 19104 ((215) 823-4144 or 823-5809). There is a fee for reproduction and costs involved in mailing the training materials.

National Institute on Alcohol Abuse and Alcoholism. (1991). Assessing alcoholism. *Alcohol Alert, 12 (April, PH 294),* 1-4.

This article provides a brief introduction to alcohol assessment and describes the advantages of standardized assessment instruments. Discussion is focused on factors that can be considered when selecting instruments for assessing clients. References are listed that provide information on assessment instruments.

Nehemkis, A., Macari, M.A., & Lettieri, D.J. (Eds.) (1976). *Drug abuse instrument handbook: Selected items for psychosocial drug research.* Rockville, MA: National Institute on Drug Abuse. (331 pages)

This document is intended as a reference for researchers on existing measurement instruments. In the first part of the *Drug Abuse Instrument Handbook*, over 2,000 items selected from 40 questionnaires and scales are categorized into 4 different areas: demographic variables, interpersonal variables, intrapersonal variables, and drug variables. Descriptive summaries of the 40 instruments (including information on availability and related references) are provided in the second half of handbook, but the actual intact instruments are not reproduced.

Nelson, R.O. (1981). Realistic dependent measures for clinical use. ***Journal of Consulting and Clinical Psychology, 49(2),*** **168-181.**

This article describes a number of different measurement strategies that have often been used in clinical research. Examples of these strategies include: self-monitoring, global self-ratings, self-report questionnaires, clinical observation, and physiological measures. The measurement of depression is used as a specific example to illustrate the variety of different approaches that are available for measuring outcomes. Guidelines for implementing data collection procedures, and some discussion on psychometric and other factors that should be considered when deciding on a measurement strategy are also presented.

Ogborne, A.C., & Braun, K. (1992). The Ontario Drug Abuse Treatment Outcome Study (ODATOS).

ODATOS is a major evaluation study funded by the Anti-Drug Secretariat of the Ontario government. The study involves 23 programs across Ontario. A number of client recording forms were developed for this multi-program evaluation effort. These include a referral monitoring form (which asks about basic demographic information and referral sources), a client profile form (which assesses client status in 14 different life areas), and a progress review/discharge summary form. A follow-up form which focuses on client satisfaction and post-program client status was also developed. These forms were designed to be maximally applicable across the different types of programs involved in the study. A customized ODATOS version of the Client Service Management System software package (Compuvision) has been developed for data obtained from the client recording forms. [More information on this study or the measures used in the study can be obtained from Alan Ogborne or Kathy Braun, Addiction Research Foundation, Programs and Services Evaluation Research Department, The Gordon J. Mogenson Building, 100 Collip Circle, Suite 200, U.W.O. Research Park, London, Ontario, N6G 4X8].

Pattison, E.M. (1976). A conceptual approach to alcoholism treatment goals. ***Addictive Behaviours, 1,*** **177-192.**

Pattison describes the expansion of treatment goals from alcohol use only to include five major life areas: emotional, interpersonal, vocational, and physical health, as well as alcohol use. He also presents a preliminary conceptual framework for considering different drinking outcomes (abstinence, controlled drinking, etc.) and discusses the implications of different outcomes for the evaluation of treatment programs.

Shontz, F.C. (1988). Data collection for evaluating treatment outcomes and program effectiveness. In D.J. Lettieri (Ed.), *Research strategies in alcoholism treatment assessment* (pp. 69-82). New York: Haworth Press.

This short chapter raises common sense issues regarding evaluating treatment outcomes. It covers different aspects of data collection and provides a useful discussion of interpreting outcome data in terms of client and program goals.

Skinner, H.A. (1981). Assessment of alcohol problems. Basic principles, critical issues, and future trends. In Y. Israel, F.B. Glaser, H. Kalant, R.E. Popham, W. Schmidt & R.G. Smart (Eds.), *Research advances in alcohol and drug problems, Vol. 6* (pp. 319-369). New York: Plenum.

In this chapter, Skinner discusses the value of assessment for alcohol treatment and presents a general framework for conceptualizing the assessment process. Critical issues in alcohol assessment include selection of content areas, selection of measures, and evaluation of assessment programs.

Sobell, L.C., & Sobell, M.B. (1981). Outcome criteria and the assessment of alcohol treatment efficacy. In *Evaluation of the alcoholic: Implications for research, theory, and treatment* (pp. 369-382). (NIAAA Monograph No. 5). Washington, D.C.: U.S. Government Printing Office.

This chapter provides a good overview of issues in outcome evaluation of addictions treatment. Topics include standardizing measurement, planning evaluations, accuracy of self-report, convergent validity, defining the population of alcohol abusers being studied, pre-treatment measures, treatment factors, when data should be collected, using and interpreting multiple measures of outcome, and issues in conducting follow-up interviews.

Sobell, L.C., Sobell, M.B., & Nirenberg, T.D. (1988). Behavioral assessment and treatment planning with alcohol and drug abusers: A review with an emphasis on clinical application. *Clinical Psychology Review, 8,* 19-54.

This article gives a comprehensive overview of assessment, conceptualized as a dynamic, ongoing process that provides directions for treatment planning. Several measures and techniques that can be used for assessing alcohol and drug problems are also described and critically reviewed with respect to their strengths and limitations. Finally, information is presented on developing effective treatment plans and goal setting.

Sobell, L.C., Sobell, M.B., & Ward, E. (Eds.). (1980). ***Evaluating alcohol and drug abuse treatment effectiveness: Recent advances.*** **New York: Pergamon Press. (188 pages).**

This text provides an overview of issues relevant to treatment evaluation measurement and methodology in the addictions. A historical perspective on treatment outcome research in the addictions is presented in an early chapter. Another chapter discusses the use of multiple measures of treatment outcome by assessing different life areas. There is discussion of the design, implementation and interpretation of evaluation studies of drug and alcohol programs.

Sobell, L.C., Toneatto, T., Sobell, M.B., & Shillingford, J.A. (in press). Alcohol problems: Diagnostic interviewing. In M. Hersen & S.M. Turner (Eds.), ***Diagnostic interviewing (2nd ed.).*** **New York: Plenum Press.**

This chapter presents information on the assessment and diagnosis of individuals with alcohol problems, focusing on problem drinkers rather than severely dependent alcohol abusers. Structured diagnostic interviews and other assessment instruments are reviewed with respect to their clinical usefulness. Areas covered include: alcohol and drug use, nicotine dependence, consequences of alcohol use, and assessment of relapse risk. Case examples demonstrate the use of several of these assessment instruments. [Information presented in this chapter provides an update on recent developments in alcohol assessment since an earlier article by Sobell, Sobell and Nirenberg appeared in 1988 (see above)].

Special Focus on Outcome Evaluation. ***Addiction Program Management, 2 (12),*** **161-169.**

Four articles in this issue of *Addiction Program Management* address concerns at the program level related to outcome evaluation of addictions treatment. The first article considers problems inherent in adopting a single method for measuring outcome across different modalities of treatment. Another article reports on an evaluation manual produced by the U.S. Alcohol, Drug Abuse, and Mental Health Administration for drug and alcohol abuse services. Current efforts being undertaken by programs to monitor the outcomes of their clients are described in the third article. The final article suggests that programs collaborate with university researchers in writing research grant proposals and conducting outcome evaluation studies to improve their access to research funding sources.

Sullivan, J.T., Sykora, K., Schneiderman, J., Naranjo, C.A., & Sellers, E.M. (1989). Assessment of alcohol withdrawal: The Revised Clinical Assessment for Alcohol Scale (CIWA-Ar). ***British Journal of Addiction, 84,*** **1353-1357.**

The Revised Clinical Assessment for Alcohol Scale (CIWA-Ar) was developed to provide a quantitative measure of the severity of alcohol withdrawal symptoms. The CIWA-Ar is a clinical rating scale that assesses nausea and vomiting, tremors, paroxysmal sweats, anxiety, agitation, headache, disorientation, and tactile, auditory and visual disturbances as part of the withdrawal process. the CIWA-Ar can be used to monitor symptoms periodically throughout the process of withdrawal. Sullivan et al. (1989) suggest that higher scores on the CIWA-Ar (scores of 10 to 20) might indicate need for therapeutic drug intervention. (Also see Busto et al. (1989) for a description of a measure of benzodiazepine withdrawal).

Tarter, R.E. (1990). Evaluation and treatment of adolescent substance abuse: A decision tree method. ***American Journal of Drug and Alcohol Abuse, 16 (1&2),*** **1-46.**

This publication includes the full reproduction of the Drug Use Screening Inventory (DUSI). The DUSI is "an integrated assessment-treatment protocol for adolescents having a known or suspected drug abuse problem" (p.1). It contains the following sections: personal history, substance use (drug use and drug involvement), behavior patterns, health status, psychiatric disorder, social competency, family system, school performance/adjustment, work adjustment, peer relationships and recreation. This is a new assessment tool. Although it was developed using a comprehensive consultation process, it has not yet been subjected to extensive validation as an outcome measure of addictions treatment.

Wells, E.A., Hawkins, J.D., Catalano, R.F., Jr. (1988). Choosing drug use measures for treatment outcome studies. I. The influence of measurement approach on treatment results. ***The International Journal of the Addictions, 23,*** **851-873.**

This article describes five approaches to measuring drug use, and discusses the practical and theoretical implications of each strategy for drug treatment outcome measurement. The drug use measures considered include: 1) measures of consumption; 2) categorical measures of drug use history; 3) weighted severity indices based on type of drug used and frequency of use; 4) composite indices of severity of drug problem; and 5) measures of patterns of use over time.

Appendix B.

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